The RUBBER AGE

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LATE NEWS of the Industry

Hoover Signs Bill Taxing Tires and Tubes—Revenue of $33,000,000 Expected—

Fight Against Any Special Tax on the Rubber Industry Fought by Manufacturers' Association and Individual Companies—Tax to be in Effect from June 21, 1932, to July 1, 1934

THE new tax bill designed to produce $1,118,500,000 in additional revenue for the government for the fiscal year 1933 became law on June 6. Though it was hoped that the testimony of leading executives of the rubber industry, given during May, would help to avert any special tax on rubber or rubber products, the bill included a tax of 2¼ cents a pound on tires and 4 cents a pound on inner tubes. The expected revenue from this source is estimated at $33,000,000.

The exact wording of that portion of the bill pertaining to the tax on tires and tubes is as follows:

"There is hereby imposed upon the following articles sold by the manufacturer, producer or importer a tax at the following rates:

"1. *Tires wholly or in part of rubber, 2¼ cents a pound on total weight (exclusive of rims or rim bases), to be determined under regulations prescribed by the commissioner with the approval of the Secretary.*

"2. *Inner tubes (for tires) wholly or in part of rubber, 4 cents a pound on total weight, to be determined under regulations prescribed by the commissioner with the approval of the Secretary.*"

This provision of the bill, among others, does not go into effect until June 21 and will be in force until July 1, 1934, at which time it is expected that the condition of Government finances will make it possible to drop the excise taxes.

In the tire industry there is little hope that any rush of tire orders will take place. On the contrary, it is felt that such taxes do not increase sales but actually delay purchases.

The fight of the rubber industry to prevent, if possible, any tax on rubber or rubber products was led by the Rubber Manufacturers' Association with the assistance of executives of leading rubber factories. The testimony of A. L. Viles, General Manager of the Rubber Manufacturers' Association, before the Senate Finance Committee, brought out the fact that the industry believed a tax on rubber was unsound in principle as rubber is a material which is not produced in this country. The imposition of a tax by this country was also likely to be followed by one of the exporting countries in addition to a retaliatory tax on American cotton and other products.

The original plan of Congress was to tax crude rubber but this was turned down by the Senate Committee mainly because it was shown by the testimony produced by Mr. Viles and others that very little revenue could be obtained this year by such a tax due to the twelve to eighteen months' supply of rubber on hand or afloat to this country. It was estimated that instead of about $55,000,000 which was expected from this source, only about $5,000,000 would be realized this year.

The statement made by Mr. Viles before the Senate

Scanning the Headlines

TAX BILL *passed by Congress and signed by President Hoover expected to produce* $33,000,000 *in revenue from tax on tires and tubes* . . . . FISK *receivers turn down suggested payment of 20% in cash on notes* . . . . U. S. RUBBER *gets tax refund of* $2,421,873 . . . . CHRYSLER *again reported seeking Fisk plant* . . . . STALWART *Rubber Co. increases size of plant* . . . . SIMPSON *named head of the tire and mechanical departments of U. S. Rubber Co.* . . . . PENNSYLVANIA *Railroad orders pneumatic tired coach unit* . . . . INDIA *adopts 7-day six-hour shifts* . . . . AKRON *group plans outing.*

Committee summarized the views of the members of the Association. In part, he stated as follows:

Statement of Mr. Viles

"The present price of crude rubber delivered in America is approximately 3 cents per pound. The proposal to place a duty of 5 cents per pound on crude rubber would, when fully effective, produce an additional cost for the automobile owners in this country in excess of $55,000,000 per year. Millions of automobiles are in daily use in this country as articles of necessity. It is a well-known fact that automobile tire manufacturers are operating at a loss and must pass any additional cost on to the consumer. A very large proportion of this tax falls directly on the farmers and laboring people of this country, for statistics show that by far the greater number of cars operating are the cheaper and lighter cars owned by farmers and individuals in moderate circumstances.

"The imposition of import duties has in most cases been for the purpose of protecting American labor engaged in industry and agriculture. Rubber is not grown within the United States and the imposition of this duty becomes a tax for revenue purposes only. . . .

"In this case it is proposed to put a duty of five cents per pound on a commodity that is now selling for 3 cents per pound; in other words, to increase by 166 per cent the cost of an important raw material that is used, but not produced in this country. . . . Figures available from the Rubber Division of the Department of Commerce indicate at the present rate of consumption there is now approximately one year's stock of rubber in the United States. Crude rubber consumption in the United States in 1931 was 346,684 tons. The industry's best estimate of consumption for 1932 is 340,000 tons. The stock of rubber on hand in the United States April 1 was 334,566 tons, and stocks afloat to the United States were an additional 44,190 tons . . . substantially in excess of one year's supply, and for that period no revenue will be available to the Government from this source.

"In addition, there are approximately 130,000 tons on hand in England available for shipment, which can be imported into this country prior to the effective date of this act, bringing total stocks within the country to 500,000 tons, sufficient for the manufacturing needs of this country for a year and a half. Add to this the excess stocks of tires presently carried in this country and you have an additional 4 months' supply, or rubber requirements for 22 months. . . .

"If this duty becomes effective, certainly there is no immediate need of the American rubber manufacturer purchasing rubber in the primary markets; and when these markets have lost more than 50 per cent of their trade markets, would it not be most natural for those governments to retaliate by, say, placing a 7-cent per pound duty on cotton or 25 cents per bushel on wheat and similar important products presently produced in and exported from this country? We no longer have a monopoly on tariffs.

"A cessation of buying for 12 months will bring financial ruin to large English and Dutch interests, which countries may very reasonably retaliate with a like weapon. In addition, it may disrupt entire rubber-producing areas and ultimately bring about an exorbitant price for rubber, increasing the cost to the American public by hundreds of millions of dollars.

"The proposed duty on crude rubber would place American manufacturers of rubber products at a distinct disadvantage in competition with foreign manufacturers exporting rubber products to this country and would make possible the flooding of the United States with rubber products manufactured abroad and offered in the United States at prices lower than the American manufacturer could meet, bringing disaster to American labor and to capital."

Fisk Turns Down Plan for Payment of 20% in Cash to Note and Bond Holders

THE receivers of the Fisk Rubber Co., Chicopee Falls, Mass., have turned down the proposal for a cash payment of 20 per cent to note and bondholders advocated on May 28 by a committee headed by Ferdinand Eberstadt, of F. Eberstadt & Co., Inc. The proposed payment is unnecessary and likely to affect injuriously the interests of the note and bond holders, state the receivers, Charles A. Dana and John B. Pierce. They also believe that it is unnecessary for the security holders to subject themselves to a charge which may amount to 2 per cent of the principal amount of the deposited securities, but that distribution would be made "if and when ordered by the court."

The committee which made the proposal represented the Fisk Rubber Co. first mortgage 20-year 8 per cent sinking fund bonds and the 5-year 5½ per cent sinking fund notes, with a program calling for an immediate partial payment on account of at least 20 per cent in cash to the holders of these securities, outstanding to the aggregate amount of more than $15,800,000.

The committee is headed by Ferdinand Eberstadt of F. Eberstadt & Co., Inc., as chairman, and includes George N. Lindsay, formerly of Bancamerica-Blair Corp., and Georges Bernard, of Interstate Equities Corp.

Cash Holdings Large, Says Committee

The committee's demand for an immediate cash distribution on account to the bond and note holders is based upon its belief that the Fisk Rubber holdings of cash and United States government securities, which were $6,753,014 on December 31, 1931, and $6,800,000 on May 27, are greatly in excess of its working capital requirements. The proposed 20 per cent payment would require about $3,164,000. Mr. Eberstadt's letter to the receivers stated in part:

"You will, I think, agree with us in the view, as conditions now stand, that the company has working capital far in excess of its reasonable requirements for any alternative, be it continuation of receivership, reorganization or liquidation.

"Our contention is that this excess working capital, accumulated at the expense of the bond and note holders through nonpayment of interest and principal, in all fairness should be distributed at once to the bonds and notes and that this can be done in a way which will bring credit on yourselves as receivers and not be harmful to the company's position in the industry, in addition to being most advantageous to the bond and note holders."

Mr. Eberstadt, the chairman of the new protective committee, is reported to have been formerly closely associated with Continental Shares, Inc., of Cleveland. The latter organization was said to be actively interested several months ago in acquiring control of Fisk for the Firestone Tire and Rubber Company. An audit and appraisal of the Fisk assets and plants was made by a well-known national accounting concern on behalf of Firestone and Continental interests, but the deal fell through, it is said, due to premature publicity regarding negotiations.

It was reported that Mr. Eberstadt previously was connected with Otis & Co. of Cleveland, which organization was keenly interested in acquiring control of the Fisk company before its entry into receivership.

Although sales for the second quarter to date are said to show a marked improvement over the first quarter, it is reported in Chicopee Falls that sales in April were only about 50 per cent normal for this season of the year. The same source indicates that there is a possibility that the Fisk plant might be closed down for several weeks but no confirmation of this report could be obtained.

India Adopts 7-Day Six Hour Shifts Increasing Working Force by 33 1/3%

INDIA TIRE AND RUBBER COMPANY, Akron announced on June 4 a 33⅓ per cent addition to its present working force through adoption of four six-hour shifts, seven days a week.

The six hour shift was first installed at the tire plant during the summer of 1931 in an effort to provide better working conditions for the "pit workers."

Improvement in attendance, efficiency and employe satisfaction has been very apparent, according to India's president, W. C. Klauss, and the plan has been extended to all divisions of the India factory where possible.

"With the recent increase in production schedules at India, it has been necessary to operate many departments seven days a week. Men on a six-hour shift, seven days a week, receive a sufficiently large income so there is no hardship," Klauss declared. "In fact, with the lower commodity prices this income is equivalent in purchasing power to wages made in previous years.

"With employment in the Akron district at approximately 70% of normal, such a plan, if adopted by all employers, would enable all men who desire work to obtain it," Klauss stated. "Certainly the adoption of four six-hour shifts instead of three eight-hour shifts would enable Akron industries to employ many thousand more men than are now being employed. All of the employes affected would be enabled to make at least a living wage, and in those instances where industrial firms are working seven days a week employes would be on approximately the same basis as they previously were a year or two ago on the eight hour day.

"The six-hour four shift day, in addition to affording employment to more workers, gives each worker more leisure time for recreation or improvement. This leisure time will naturally tend to lengthen the years of industrial life of the worker. On the six-hour day workers seldom reach the point of fatigue which is so often encountered in the eight-hour day.

"Monotony, which has been very much discussed by sociologists, would, of course, be reduced materially inasmuch as the worker would be in a plant only six hours instead of the usual eight hours.

"It has been the experience of the India Tire & Rubber Company that the six-hour shift plan brings better workmanship, better attendance, and better health to the worker. This has been particularly true in the more fatiguing operation such as the pit, and records show that even in the summertime when heat is a very serious consideration all of these improvements have applied," Klauss concluded.

Pennsylvania Railroad Orders Two-Unit Pneumatic Tired Michelin Rail Coach

ANNOUNCEMENT was recently made by the Pennsylvania Railroad, through its shops located at Erie, Pa., that they had ordered from the Edward G. Budd Mfg. Co., Philadelphia, Pa., a two-unit pneumatic tired rail coach, of the type developed by Michelin and recently built and demonstrated in this country by the Budd company.

Equipped with Goodyear rail tires, the new cars will be constructed of light weight, spot welded stainless steel. The two units will consist of a motor car and trailer, which will have a total passenger capacity of seventy-six persons. The motor car proper will contain baggage and smoking compartments, and may be operated from either end.

The car is so designed that it comprises a complete unit, with its trailer, the forward end of the car being sloped to provide stream-line features entirely new to railroad equipment in America. The rear end of the trailer will also be stream-lined to carry out an identical design for both ends of the two-unit car.

The new car will be powered by a 170 h. p. Budd-Junkers Diesel engine and the two units will weigh 50,000 pounds, compared with the average 88-passenger steel railway car, which weighs 130,000 pounds.

O'Neil Sees Higher Tire Prices as Stabilizing Force in Rubber Industry

WHEN commodity prices start on the upward swing, automobile tire prices probably will rise much faster than those of other commodities," said William O'Neil, president of The General Tire and Rubber Company, who is now on a nation-wide business tour studying industrial and commercial conditions from coast to coast.

"Like many other things, rubber is being produced at less than the cost of production," he said recently. "Rubber, however, is being produced at a price farther below the cost of production than most other commodities. Rubber costs and tire costs probably will not go up until costs of other commodities start to rise but, then, they will climb much faster.

"The government has set out to get fifty million dollars out of the rubber industry as federal income. This certainly cannot come out of profits so it must come out of increased prices.

"In any event, within a year, ordinary economic conditions will force rubber prices to a point much higher than they are today. This would not only tend to halt price deflation in the industry but would be an important factor in the improvement of business generally."

Chrysler Again Reported in Market to Take Over Fisk Plant at Chicopee Falls

ACCORDING to newspaper reports emanating from Chicopee Falls, Walter P. Chrysler, automobile manufacturer, is expected to make an offer shortly to take over the Fisk Rubber Co. plant. The report continues:

Two years ago, shortly before Fisk entered receivership, Chrysler is understood to have had an audit of the company made for the purpose of making an offer for its business and after it went into receivership, another offer was made, reported to be about $6,000,000.

About a year ago, not long after the second proposal for a sale, Chrysler automobile companies stopped purchasing Fisk tires for original equipment. The Chrysler trade previously represented from 22 to 25 per cent of the total Fisk sales and if it again were given to the Fisk Company the latter's volume now would be about doubled, it is said.

If Chrysler were to acquire Fisk, there is little doubt but that he would continue to operate the Chicopee Falls factory as a separate unit in the tire industry. The sales of his various automobiles have been strikingly high during the last year and it is said that he now virtually needs his own tire plant.

There is a possibility that the Federal court, which has jurisdiction over the Fisk receivership, soon may be petitioned to set an upset price for the sale of the business and, if and when this is done and the property advertised for sale, it is assumed that Chrysler would make his bid.

E. H. Broadwell, former general manager and vice-president of the Fisk Company and now manufacturers' sales representative, spends the greater part of his time in Detroit in constant contact with the Chrysler organization, it is understood, and is in a position to resume sales relations at a moment's notice.

(Other news of the industry will be found on Pages 196-201)

ZINC OXIDES

Part I—Properties of Various Zinc Oxides

By G. F. A. STUTZ
Chief, Pigment Research Division, New Jersey Zinc Co.

ZINC oxide is often looked upon as being simply a chemical compound and from this standpoint it might seem that it has few possibilities as to the variety of forms which it can take. As a matter of fact it is quite a versatile material and can be made to undergo an extremely wide range of variations, both in chemical properties and in physical characteristics. From time to time there have been developments in zinc oxides, designed for use in rubber, that have met with very definite favor in certain respects but which have been found subject to limitations in other respects. Today we are somewhat at a loss to know just what type of zinc oxide is most desired by the rubber manufacturer and it seems necessary to present a number of oxides, each of them designed to meet some special property or requirement. With the thought that some of these variations which have been effected in zinc oxide would be of particular interest to this group, it is proposed to describe several of the forms in which it can be prepared. The information which is offered deals primarily with the material, zinc oxide, and the properties which it exhibits as a pigment and as a chemical compound. There are undoubtedly a great many specific uses in rubber to which these various forms of zinc oxide are applicable and with which the zinc oxide manufacturer is totally unfamiliar. We cannot presume to give exact information as to the results which may be obtained in rubber from the use of such materials but can only indicate, in a very general way, some of their possibilities.

Zinc oxides may be varied with respect to three major properties:

1. Particle size and shape.
2. Chemical purity.
3. Nature of the surface.

To indicate the variations possible in particle size and shape we shall describe five zinc oxides which, for convenience, we will call zinc oxides A, B, C, etc.

Zinc oxide A is an extremely fine material of quite uniform particle size and shape. The particles are generally all of the same shape and in the photomicrograph they appear as small spheres because the material is beyond the limit of resolving power of the microscope. Actually they probably are small prisms of equal length, breadth and thickness. Occasionally a few small plates may be found. The average particle diameter of this oxide is about .10 to .12 micron. It may be, therefore, said to be a colloidal or near colloidal zinc oxide and it approaches carbon black in particle size. It represents the finest zinc oxide which has been used commercially.

Zinc oxide B shows an appreciable increase in particle size with respect to zinc oxide A. Again it is quite uniform in particle size and shape and its average particle diameter is approximately .15 to .18 micron.

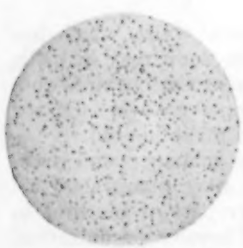
Zinc oxide C is the result of a further increase in particle size with respect to zinc oxide A and again is uniform with regard to particle size and particle shape. The average particle diameter of this material is approximately .35 micron.

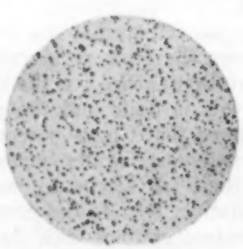
Zinc oxide D differs from the first three in that it contains particles of several sizes. It is non-uniform as to particle size, and it shows some slight variations in particle shape. There are a great many particles that are practically as small as the particles in zinc oxide A. There are others that are at least as large as those in zinc oxide C. The size chracteristics of an oxide of this type are best indicated by means of a size-distribution curve from which an average diameter can be determined. For this material such an average is approximately .3 micron.

Zinc oxide E is similar to D and represents an appreciable increase in particle size. It is found to contain less of the finer particle size material, and more of the larger. The range of sizes is probably not as great as in the case of zinc oxide D, though again it is necessary to use a size-distribution curve to obtain an average diameter which is found to be approximately .35 to .4 micron.

While these five oxides indicate approximately the maximum variation in particle size and size-distribution which has been used commercially, it should be pointed out that zinc oxides can be made

EDITOR'S NOTE: This paper was delivered in three parts by Messrs. G. F. A. Stutz, G. S. Haslam and B. R. Silver, of the New Jersey Zinc Company, at the March 7, 1932, meeting of the Akron Group, Rubber Division, A. C. S.


Zinc Oxide A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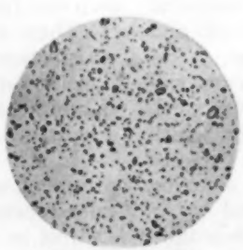
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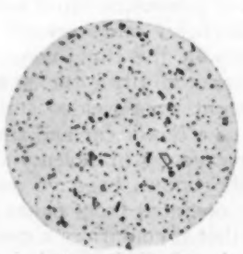
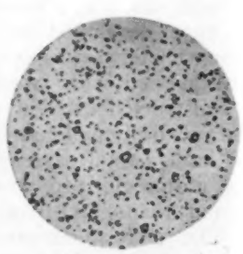

Zinc Oxide D


Zinc Oxide E

which go to the extreme in either direction. For example, it has been possible to produce experimentally an extremely fine zinc oxide, appreciably finer in size than zinc oxide A; the extreme fineness of this material cannot be suitably shown in a photomicrograph since the particles are well beyond the resolving power of the microscope. However, its particle size is about .07 to .09 micron and therefore it is definitely comparable to some of the carbon blacks.

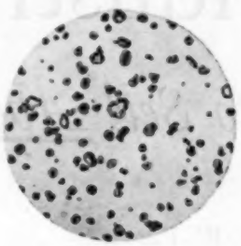


Figure I

Figure I illustrates the opposite extreme, a coarse zinc oxide of uniform size. The average particle size of this material is approximately one micron.

Figure II represents an extreme in particle size of an oxide showing somewhat less uniformity. The average particle diameter of this material is approximately .8 micron.

Particle size is the property of a reinforcing pigment that is of most general interest. Closely related to it is the specific surface of the pigment, a property which is of more immediate interest. This is the total surface per unit weight which the pigment presents to be wetted by the rubber and is usually expressed in square meters per gram. The relationship between the specific surface of zinc oxide and its particle size is shown in Figure III. Considering the extremes of the particle size range it is seen that approximately a fifteen-fold spread in specific surface can be effected.

The second property of zinc oxide which may be varied is its chemical purity, that is, the amount and type of impurity associated with the oxide. Impurities are usually considered harmful and there is a tendency toward the belief that an absolutely pure zinc oxide is most desirable. However, the steel industry is founded on the premise that impurities are necessary for good results. Cer-

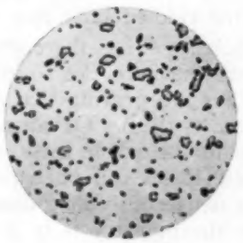


Figure II

tainly there are cases where the impurities which are either intentionally or unintentionally associated with zinc oxide are of real value. They should possibly be considered as auxiliary compounds rather than as impurities.

One of the compounds which has been found to have a great effect on zinc oxide, as it is used in rubber, is the zinc material other than zinc oxide which is present. Such zinc material is usually in the form of some sulphur-containing compound such as the sulphite or sulphate. The amount can be varied over a wide range. Oxides A, B, and C are virtually free from such compounds; D on the other hand is found to contain an appreciable quantity; E contains a somewhat intermediate amount.

Metals, other than zinc, may be present in the oxide, principally lead and cadmium. Cadmium is seldom found in large amounts and none of the oxides described contain any appreciable amount of this element. Lead is found in varying amounts and the lead content can be varied over rather wide limits; that is, from practically no lead to a quantity of one per cent or more. The lead can also be varied as to the form it takes. It can be present as the oxide, litharge, or it can be put in the form of the sulphate, usually a basic sulphate. In the case of the five oxides described, A, B, and C are virtually free from lead. D and E contain approximately .3 per cent, in the sulphate form. The same oxides can, of course, also be prepared with any desired lead content, either oxide or sulphate.

The third property of zinc oxide subject to variation is the nature of its surface. Zinc oxide is made and collected as a fume, and fume process pigments are generally recognized as being most satisfactory from the standpoint of their dispersion in vehicles such as rubber. This is apparently due to the fact that the particles

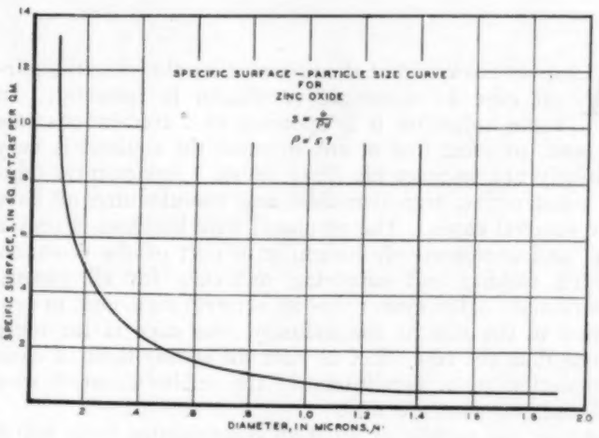

SPECIFIC SURFACE – PARTICLE SIZE CURVE
FOR
ZINC OXIDE
$S = \frac{6}{\rho D}$
$\rho = 5.7$
SPECIFIC SURFACE, S, IN SQ METERS PER GM
DIAMETER, IN MICRONS, D

Figure III

of a fume product are finely divided, are never cemented together, are only loosely flocculated, and therefore respond well to dispersion. However, since the product is collected from a gaseous suspension, there is adsorbed on the surface of the particles considerable quantities of gas. The composition of this gas can be made to vary over a rather wide range; including oxygen, nitrogen, carbon dioxide, sulphur dioxide and water vapor. The presence of such gas on the surface of the oxide enables it to resist wetting by rubber. If the gas is completely removed, by evacuation for example, and the particles are not allowed to readsorb such gases, there is a marked improvement in wetting by rubber. However, it is impossible permanently to remove such gases since the oxide immediately readsorbs them upon exposure to air or other gases. However, the zinc oxide surface can be modified if such gases are replaced by other materials which are more readily wetted by rubber. For example, it is possible to replace the gas by an extremely minute film of fatty acid such as the stearic acid common to rubber compounding practice. All five of the oxides described are susceptible to such surface treatment and their ease of wetting by rubber is immediately increased when they are subjected to such surface treatment.

It is impossible in this discussion to any more than indicate the possible variations which can be effected in the properties of zinc oxide. Undoubtedly, even wider limits than those described can be resorted to. We have very little idea as to the possible effect that all such variations or combinations of variations can have on the ultimate properties of rubber compounds but we feel that they must be considerable and must be deserving of the attention of the rubber compounder.

(Part II on "The Effect of Variations in the Properties of Zinc Oxide on Its Action in Rubber" will appear in our next issue.—Editor.)

The Big Problem of the

Insulated Wire Industry

Is to Sell Above Cost

By H. A. SEWARD

Sales Department, Seward Wire Co., Parkersburg, W. Va.

ALL over the world at the present time the vicious squirrel cage of economic revolution is spinning. In some industries it is spinning at a tremendous rate of speed, so great that at any moment the squirrel is very decisively apt to meet his dizzy finish. Agriculture, mining, construction, transportation, and manufacture, all have their squirrel cages. The insulated wire business is only a small and comparatively insignificant part of the economic division making and supplying materials for all general construction. However, it has its squirrel cage, and, in proportion to the size of the industry, this cage is far more vicious than the rest. Let us turn the strong light of close examination upon conditions in the rubber-covered wire field and see what we find.

About the middle of 1929 all commodities from which rubber-covered wire and cable are made began tumbling in price. The continual decline in these commodity prices caught the manufacturer as it always catches him, short at both ends of the transactions. He places an order for raw materials one day, the next day the price falls and he is obliged to take a loss on his incoming goods. He keeps taking this loss as the market continues to fall, always trying to catch up with his commitments. This is how he loses at one end of the transaction. At the other end he is obliged to protect his customers.

This matter of protection has become the foulest thing in the whole business. It leans over backward to wipe out the *"caveat emptor"* system of trade, and leaves in its stead an even worse situation by making the manufacturer, who is the really productive agent, the one who must not only always beware but must also always expect to be short-changed no matter how shrewdly he checks. By protecting the customer in the manner that most manufacturers have come to do it, the manufacturer loses at the selling end of the transaction also. So, the manufacturer loses on his raw materials because he is obliged by his sources of supply to accept his commitments at their face (in other words, the *"caveat emptor"* system is here enforced); and he loses on his finished product because by insane protections and ridiculous rebates and deductions his customers are allowed always to pick the lower price at any change in price. The manufacturer loses at both ends of the stick; he loses while buying and while selling. And that is how the squirrel cage begins to whirl.

When this situation continues for any lengthy period the manufacturer sells his stock as fast as he can so that he can turn out new goods at a cheaper cost. He gets into a mad rush to turn over his goods at a rate that will enable him to use up his high-priced raw materials and make new commitments in keeping with the falling market. The terrible result of it all is that prices on his finished goods keep dropping lower and lower. He keeps turning over his material faster and faster, trying to stay in the game, trying to catch up in the dizzy whirl of cost and selling price. What can be the ultimate end? With declining demand or a demand stagnant at a very low index figure there can be only one ultimate end. Very few of the rubber-covered wire manufacturers can weather the storm. The hand-writing is on the wall. When something costs one cent to make and it is sold for three-fourths of a cent it is certainly only a matter of time until the producer will sign his own economic death warrant.

All Companies in Field Losing Money

All this sounds very pessimistic and perhaps rather sickening, but it is high time to look squarely at the facts in American business and not to sing songs about the coming boom around that corner that seems to have cornered the market on corners. The larger rubber-covered wire companies are losing money at the rate of from $4,000,000 to $6,000,000 per year; the smaller ones at the rate of from $50,000 to $350,000 per year. Should this depression last two more years, as it very well might, there will be many tombstones in the rubber-covered wire field, and many new forms in charge of the riddled hulk that will be left.

In spite of their balance sheets there are some manufacturers who think that they are not losing "so much" at prevailing prices. They are praying that demand will pick up before doom overtakes them. Of course, demand is the great soothing syrup to the whole mess. Should demand pick up, then all these losses can be wiped out. But demand is holding off a dangerously long time, and the figures show that right now the industry is in a worse than precarious position. In actual, cold, and well-calculated figures the picture of the rubber-covered wire and cable industry is as follows:

Let us assume that all manufacturers are at scratch and that it is March 5, 1932. Assuming this, all manufacturers are now buying exactly alike—all at the lowest possible figures. This is assuming that they all have used up all their previous commitments and are now at the best possible position to produce cheap wire and cable. We will tabulate only the sizes of National Electric Code Standard Rubber-Covered Wire most in demand and No. 14-2 ABC Armored Bushed Cable, which is by far the greatest seller in cable. Note that these tabulations are arrived at by a particular unit of organization, and that it is quite possible that some other unit might arrive at them through a different method; nevertheless, every bit of material con-

sumed to build a product, as well as all other expenses encountered, must be charged to that product somehow to arrive at its cost. Efficiency of organization does not enter into these tabulations as we are assuming all to have the same efficiency. This brings the situation down to the coldest of figures, and ones from which no manufacturer in the rubber-covered wire and cable industry can escape.

All figures are of March 5, 1932 when No. 14 Solid Single Braid National Electric Code Standard Rubber-Covered Wire had a market selling price of $3.15 per thousand feet, but was being sold by some manufacturers as low as $2.97 per thousand feet.

RAW MATERIAL BASES

Copper Base .0675
Rubber Base .0450 } **All delivered, ready to use at plant.**
Cotton Base .1450

Size	Materials Cost	Direct Labor	Average Freight M Feet	Overhead and Admins.	Sales Expense 5%	Deliv. Sales Price	Actual Cost
14 Sol. SB	2.1470	.4090	.1100	.7000	.1520	3.15	3.5180
12 Sol. SB	2.9636	.4540	.1443	.7770	.2233	4.61	4.5622
10 Sol. SB	4.0956	.5113	.1950	.8750	.2879	6.27	5.9684
8 Sol. SB	5.8267	.5841	.2808	.9996	.4173	8.93	8.1085
6 Sol. SB	9.2478	1.7000	.4524	2.7500	.6199	12.85	14.7693
6 Str. DB	13.0038	1.8000	.4836	2.9137	.8783	18.05	19.0794
4 Str. DB	16.9472	2.2000	.7098	3.4959	1.1760	24.23	24.5289
2 Str. DB	24.9289	3.0000	1.0764	4.6025	1.6277	33.63	35.2355

Sales cost of 5% is computed on delivered sales price with freight deducted. The freight is computed on a direct-from-factory basis of shipment, transportation charges not to exceed 39c per 100 lbs. In the case of shipments made to central warehouses for distribution all charges such as rent, handling, trucking in and out of warehouse, delivery to customer, interest on investment, and any other expenses would be considered as being very low if it were figured at 5% of the selling price.

All above figures are based on a unit equipped for a production of 1,000,000 feet per day of 24 hours, but operating at only 50% of capacity. Costs, though not in direct proportion, will increase as production diminishes and decrease as production advances.

The following is the tabulation on No. 14-2 ABC Armored Bushed Cable. All figures are of March 5, 1932, when the market selling price was $18.00 per thousand feet, but when some manufacturers were shading the price down to $17.00 per thousand feet.

RAW MATERIAL BASES

Copper Base .0675
Rubber Base .0450 } **All delivered, ready to use at plant.**
Steel Base .04802

No. 14 Solid SB Mat. Labor & O. H. $3.09 x 2 =		$6.1800
2% added for Twisting		.1236
Twisting Labor		.0582
Paper over conductors	5.75 lbs. @ .065 lb.	.3738
Paraffin in Paper	.75 lbs. @ .05 lb.	.0375
Paper wrapping labor		.1200
General Trans. & Delivery to Cable Department		.0100
Steel Used 180 lbs. @ .04802 lb.		8.6436
Armoring Labor		.3500
Arm. Cable Shop Supervision & Upkeep		.3000
Coiling and Testing		.1500
Tying Wires used 20 per M Feet		.0670
Packing and Shipping or Stores		.0800
Code Labels for Wire and Cable		.1450
Gen. Adm. and O. H. up to here		.7000
Manufacturers Association Fee		.1000
Bushings		.5000
		$17.9387
Commission 5% on $18.00 = Selling Price		.9000
Cash Discount 5% on $18.00 = Selling Price		.9000
		$19.7387

This does not consider freight, trucking into warehouse, storage, and delivery to customer. This would come to at least $2.30, bringing the total cost to over $22.00 per thousand feet.

From the above figures it is easily seen that the rubber-covered wire and cable industry is having dark days. So are all industries. And though this particular industry can pull out of it, it will never do it by insisting upon selling its products at figures considerably below cost. It is no fun to drop out of the market, close one's plant and sales organization, and sit idly by waiting for a break; but it is even less fun to keep turning out products at a huge and constant loss. Until all manufacturers in this game realize these facts there will be no ray of hope in the insulated wire business. Should the two types of manufacturers that have, more than any other factor save the depression itself, brought about this vicious state of affairs decide to really endeavor to sell their product at even an absolute cost figure the industry could straighten its affairs and look to the future with hope and perhaps real confidence.

The two types of manufacturers are: first, the one who doesn't know his own cost and yet keeps selling at a lower and lower price, and secondly, the unscrupulous manufacturer who cannot see the idea of selling at any price that is not under everyone else's whether it be at a tremendous loss or not. To the second type turnover is all that matters, and that is why the squirrel cage whirls faster and faster, on and on, going, going towards, well towards what? It is certainly not prosperity.

Review of Vanderbilt Handbook and News

THE VANDERBILT 1932 RUBBER HANDBOOK. Issued May 25, 1932. 3¾ x 6¾ in., looseleaf. Published by R. T. Vanderbilt Co., N. Y. City. For free distribution.

(Reviewed by C. R. Boggs)

The new edition of this handbook of nearly two hundred pages promises to be even more useful to the rubber technologist than its predecessor.

The colored looseleaf pages divide the volume into three distinct sections. The first gives a complete description of each of the Vanderbilt products with extensive data for their successful use in rubber compounding. Many references are made to the more extensive experiments recorded in the Vanderbilt News. The clearness and conciseness with which this material is presented is an exhibition of salesmanship of the highest order.

The second portion consists of a series of authoritative articles on the more scientific side of rubber. The material is contributed by twenty-nine specialists in their respective fields. The editor is to be congratulated for securing chapters from Europe as well as from this country, thereby adding to the prestige of the collection. Many of the subject titles have been retained from the previous edition, but the reviews have been completely rewritten. The subject matter of the new chapters reflects the trend of scientific and technical developments in the industry. The topics treated range from the more lowly problems, such as sulfur analysis, to the purely scientific question of the X-ray investigation of the hydrocarbon. An excellent summary of the theories of vulcanization is included.

The third section contains data and tables for the every day use of the rubber compounder. The material on volume costs, specific gravity, methods of computation, etc., allow the compounder to design and calculate the characteristics of his rubber compounds in an easy and efficient manner.

The handbook cleverly combines the advertising of compounding materials from a thoroughly scientific viewpoint with material that summarizes much of our present knowledge of rubber. This and the reference tables assure that the manual will be in constant use by its possessors.

THE VANDERBILT NEWS, Vol. 2, No. 2, March-April, 1932. 56 pp. Published by R. T. Vanderbilt Co., N. Y. City. For free distribution.

This issue differs from the usual one put out by this company in that it contains a reprint of the high spots of all the Vol. 31 (1931) issues so that the issue can be used in connection with the company's new handbook which has just been issued. The handbook has very little matter descriptive of the Vanderbilt materials and this issue of The Vanderbilt News is useful in looking up references mentioned in the handbook. The issue contains a mass of material on stocks containing Altax, Age-Rite, Tuads, P33, Kalite and other materials made by this company.

New Applications of RUBBER from a RESEARCH Viewpoint*

By J. W. SCHADE

Director of Research, The B. F. Goodrich Company

FOR some thousands of years no better device was found for milking a cow than the human hand. Milking by this method is a costly and tiresome operation. Undoubtedly many a farmer or hired hand bemoaned the daily grind of milking and wished that Heaven would provide some easier means of transferring milk from a cow to a pail; but until relatively recently, apparently, no one who possessed the necessary mechanical ingenuity had the facilities to construct a device which would accomplish what was so fervently desired. The time finally arrived, however, when ingenuity, mechanical skill and capital were combined to produce a commercial milking machine. In the invention of this device the need became apparent for a flexible cup to be made of a material which would withstand deterioration in strength, flexibility, and resiliency upon prolonged contact with milk, repeated flexure and release, and frequent sterilization by heat or chemical treatment. For such service rubber is obviously suited; and the invention of the milking machine offered a new application for rubber. A new requirement was met by a material already available.

In contrast to this situation, the chemical industry from its earliest days sought new materials for construction of equipment in which to handle corrosive liquids in large volume. Iron or other metals could not serve in some instances. Muriatic acid, for example, could not be stored in metal, and ways and means were sought to permit handling and shipping of this material at lower cost and with less danger of loss than was possible in glass or stoneware containers. One of the schemes devised was to line wooden tank with sheets of rubber adhered to the wood, and tanks of this sort were used for a number of years. During that period many attempts were made to stick rubber to steel in order that larger and more durable equipment might be utilized; but none of the adhesives tried proved eminently successful for the purpose.

The Chemist's Method

A few years ago, however, a chemist, carrying out a series of experiments to ascertain what would happen to rubber if it were treated with a variety of chemically active substances, found that certain chemical agents produced a change in the rubber hydrocarbon. The percentage composition of carbon and hydrogen remained the same but the way in which the various atoms were linked together was altered. The resulting material, after complete removal of the reacting substance, behaved in many respects differently from the rubber from which it was derived. In one respect, however, the new material resembled unvulcanized rubber. It was sticky. This property was a disadvantage to its use for phonograph records, one of the possible applications under investigation at the time, but it was found to be of great advantage in adhering rubber to other materials, notably steel, with a tenacity that neither ordinary rubber nor any other previously discovered material would produce.

Discovery of this new rubber product and of its unusual adhesive properties made possible the commercial development of various forms of rubber-lined chemical equipment for handling in large quantities not only muriatic acid but a number of other chemicals which rapidly attack the usual materials used for the construction of tanks and pipe or are contaminated by contact with them. As a result, numerous railroad tank cars, stationary tanks in manufacturing plants, pipe and valves lined with rubber are now utilized in types of service formerly satisfied with less success and economy by materials inferior to rubber for resisting corrosive liquids.

Use of New Materials

These two innovations in the use of rubber illustrate the two general causes for the development of new uses for any material. Some applications are found in serving new needs with a familiar material possessing well-known properties which, obviously, make it eminently fitting for the purpose. Conversely, the discovery of a new property in such a material or the invention of a new material of unique properties may indicate its unusual suitability for meeting requirements of long standing. Rubber was known to possess the characteristics essential for milking machine cups long before this need was presented. The character of the bond between rubber and steel necessary for service in the chemical industry was understood for years and presented a challenge to the ingenuity of the rubber technologist to synthesize a composition for the purpose. These means of developing new uses for rubber have been, and will undoubtedly continue to be, practically the only methods of disclosing new possibilities.

To those searching for a material to accomplish certain ends, some of the properties of rubber are well known. Its remarkable resistance in pneumatic tires to abrasive wear and repeated flexing is convincing evidence of the outstanding value of rubber compositions for service involving these properties. This unusual resistance to wear has been employed in many ways. Sand-blast hose, conveyor belts, cement guns, soles and heels of shoes, casing guards for oil well drilling, and many other articles depend for their economic value largely upon this property. It

*Delivered before the Akron-Cleveland Section, Society of Automotive Engineers, May 9, 1932.

is probable, however, that this property may be utilized in many new devices when resistance to abrasive wear is the paramount consideration.

In spite of the obvious differences in toughness and stretchiness between a pneumatic tire tread and a rubber band,—forms of rubber compositions familiar to everyone,—there still exists, on the part of those who might use rubber advantageously, a lack of adequate appreciation of the fact that rubber compositions of definite properties are designed intentionally to fit particular types of service. The materials incorporated with rubber to resist road wear on a tire are utterly useless for producing the characteristics required for rubber bands or webbing thread. Knowledge as to the kind and amount of other materials to be blended with rubber and the proper processing methods to produce specific effects has been accumulated over many years by rubber manufacturers and will gladly be applied to the benefit of those who desire a rubber product of any sort. Hard rubber and blown sponge rubber augment the variety of materials available.

Combination of Rubber With Other Materials

It is of great advantage, moreover, in the design of rubber articles, that rubber compositions may readily be combined by the manufacturer with other structural materials,—metal, wood, concrete, glass, or textile fabrics. As a result, articles are produced possessing, in addition to the desirable properties of rubber, other properties exhibited to a superior degree by these other materials. Rubber tires without cotton cords, rubber tanks without metal walls, rubber heels without rigid material to serve as an anchorage for attachment to shoes would command little attention in the economic scheme. Methods of designing and building these composite structures are well known to rubber manufacturers and this experience is also at the service of all prospective customers.

For the development of new uses of rubber it is evident, then, that knowledge of what is required, supplemented by knowledge of how to select the best rubber compositions and combine them with other materials most effectively for the purpose, should readily point the way to more widespread applications for this extremely versatile material. It is common experience, however, in considering rubber for new uses that the knowledge available is not adequate to give assurance that rubber will give satisfactory service under the proposed conditions of use. To illustrate: one of the properties of rubber most deeply impressed upon the public is its water resistance. One of the earliest uses of rubber was the manufacture of waterproof footwear and clothing. The natives in the South American jungle made shoes of rubber and the Macintosh Company in England manufactured waterproof clothing long before the process of vulcanization of rubber was discovered. Later, articles of vulcanized rubber, such as fire hose, garden hose, hot water bottles, syringes, bath caps and many others substantiated the popular belief in the superior water resistant quality of rubber compositions.

In the chemical industry, however, rubber-lined equipment may be desired to withstand the action of water solutions of various sorts at temperatures and pressures much higher than obtain in the use of any of the rubber articles commonly coming in contact with water. The chemical engineer wishes assurance of service based on experimental knowledge or upon experience with rubber under conditions similar to those he proposes. This knowledge is lacking both to the engineer and to the rubber technologist with whom he deals. Neither has the time nor the facilities to make a systematic, quantitative study of the effect of various temperatures and pressures upon the absorption of water by rubber compositions, nor a study of how the absorption is affected by varying the kind and amount of compounding materials blended with the rubber. Their problem is to select and employ a material known to have the desired characteristics; and, usually the demand is to produce results immediately.

This is but one example of many situations which arise when available knowledge is inadequate to permit further progress. When this point is reached new information must be secured, experimental work must be planned and executed to yield data upon which further progress may safely be based. The acquiring of new knowledge is the function of research. From the boundary of knowledge the research investigator starts his journey into the unknown, bent on survey, exploration, evalution. Research in any manufacturing industry logically is called upon to obtain new knowledge about the materials handled or new materials which may replace them, the processes employed in fabrication and the conditions of service of the goods in the hands of consumers.

From the point of view of the rubber manufacturer, consumers of his products sometimes have too little regard for the limitations of rubber. Some users of conveyor belts have ignored the deleterious effects of oxidation and decomposition of rubber at high temperatures. Freshly quenched coke at temperatures not far below red heat, hot sand and other hot materials are dumped upon rubber-surfaced belts for transportation to neighboring cars. Until a short time ago the best known rubber compositions lasted only a brief time under this severe treatment. How to device compositions of superior heat-resisting properties then became a problem for research study. As a result of investigations there are in operation today conveyor belts yielding much longer service than the best obtainable but a few years ago. One of these improved belts, after nearly two years' constant use under conditions which formerly caused failure within three months, still gives promise of considerably further service. Research studies of rubber compositions has broadened the field of usefulness of rubber in service involving high tempreatures. Other accomplishments resulting from research on materials are well known. You all know of the vast increase in the service mileage of modern cord tires with their tough treads in contrast with the white-tread, square-woven fabric tires of some years ago. This improvement was not accomplished at a single step. Constant study, experimentation and testing over a period of years gradually lengthened the service life of the product.

Proper Design Fruitful

Systematic study of design of articles as related to deteriorating forces in service has also been extremely fruitful in improvement of quality. A certain type of power transmission belting was desired for unusually severe service. Belts available at the time were first tested to give a standard of reference. The best belt procurable on the market failed under severe, accelerated testing conditions in twelve minutes. The factors causing failure were sought and analyzed. Changes in design were made, textile materials of new construction and rubber compositions of special character to resist the deteriorating forces were selected. Numerous trials were run embodying in each succeeding construction changes indicated to be desirable by the behavior of preceding test belts. As a result, belts of greatly improved quality were produced by commercially applicable methods. When these were tested under the same severe conditions causing failure in twelve minutes of the best belt procurable a few months previously, the

new type lasted 2,000 minutes with less stretch and more uniform transmission of power throughout their life. Research studies of this sort give a scientific basis for design of manufactured articles, point the way to improved quality and lower costs and disclose additional markets for improved products.

Further illustrations might be given of results of research on materials and products, and also examples of how research studies of processing methods result in lower costs, improved quality, and reduced waste. They would only serve, however, to emphasize the evident conclusion that as research investigations are extended, new and broader fields of usefulness for rubber will be found.

We have, therefore, on the one hand those who wish to use a material possessing properties exhibited to an unusual extent by rubber compositions, on the other the rubber manufacturers with a broad background of knowledge of how to design rubber compositions and structures to meet the requirements of the first group, and, by research and factory experimentation, constantly acquiring additional knowledge to broaden the field of usefulness of rubber still further. The rubber manufacturer, naturally, desires to enlarge his production, to render wider service. He cannot, however, by any exercise of imagination, conceive the particular needs of the thousands of inventors, designers or engineers who are daily impressed with the desire to accomplish results which rubber may produce. Each needs stimulus and assistance from the other. The uses of rubber will be extended more rapidly and more widely as cooperation between the two can be promoted.

Wide Use of Rubber

Rubber has attained its position as a billion dollar industry because rubber articles serve such a wide variety of requirements. Deformability, high elastic recovery, resilience, resistance to water, oils, gasoline or chemical solutions, resistance to abrasion, electrical properties such as dielectric strength and high surface or volume resistivity, low heat conductivity, high frictional resistance on dry surfaces, low frictional losses in water-lubricated bearings, low permeability to certain gases, adhesion between surfaces of various materials, and absorption of mechanical energy are properties which alone, or in combination with others of the group, have been utilized in serving the needs of industry and daily life. Wherever isolation of vibration, elimination of noise, deformation without slippage between component members of a structure, resistance to corrosion, sealing against pressure of fluids, water-lubrication of moving parts, absorption of shock, adhesion of materials to one another, resistance to abrasive wear or repeated flexing are essential properties to a design, rubber alone or as a component of composite articles, should be considered as a material of construction.

To the engineer, trained in evaluating materials on the basis of their physical and chemical characteristics, the rubber manufacturer must look for cooperation in developing rubber's increasing usefulness in new applications where the outstanding properties of rubber will serve. In some instances immediate results can be obtained, in other cases new knowledge must be sought. When this is needed, facilities for securing information required for intelligent development are available in the research and testing laboratories of the rubber industry. As an essential for progress the rubber manufacturer needs the patient and persistent cooperation of the engineer in carrying developments to successful accomplishment. These contacts and this sort of cooperation are the most promising sources of new developments in rubber.

Stearex Products

DURING recent months some evidence of misunderstanding of the nature of Stearex Flake appears to have arisen, according to its manufacturers, the Binney & Smith Company, in a statement sent out to the rubber trade. A brief outline of the history of fatty acid developments taken from the above statement appears below.

Seven years ago the Binney & Smith Company became interested in the rubber compounding possibilities of stearic acid, primarily because the general use of increased proportions of Micronex made the question of softeners of vital interest and also because they appreciated the essential nature of fatty acids in connection with many of the more modern organic accelerators. After study and standardization of the methods of manufacture and control, Stearex was introduced to the trade. The trade-mark, Stearex, has represented only the standardized grades of natural animal stearic acid in all commercial forms and grades.

Chemical dictionaries state the derivation of stearic acid as originating from tallow by saponification, or from oleic acid by hydrogenation. Chemically the result is essentially similar by either of these alternately available methods of conversion.

Hydrogenation Produces Purer Product

It has been found, states the company, that by hydrogenating oils of a certain definite chemical specification, purer and more uniform material could be produced. The raw materials include certain fish oils, but are not limited to such for the necessary characteristics, and by controlled hydrogenation a more fully saturated product and one higher in stearic acid content from the chemical point of view is actually obtained. The lower iodine value which results represents a lesser unsaturated or oleic acid content.

The trade-mark, Stearex, was included in the name of stearic acid flake in order to identify it as a member of the Binney & Smith group of fatty acids. That there is an important place for the hydrogenated product in rubber compounding is proven by the fact that the largest consumers have utilized it in volume, continues the statement.

It is still sometimes possible to develop a prejudice against new materials because they are produced entirely by the methods of chemical synthesis. The chemist knows that ultimate purity is the only important consideration and when the matter is referred to him for decision this is favorable because his opinion is technically sound and intelligent.

All types of fatty acids are included in the Binney & Smith line and they state they will continue to produce their regular animal Stearex in all grades, in cake or powder form.

Rates on Scrap and Reclaimed Rubber

The Illinois Freight Association Docket No. 6596 proposes a rate on scrap rubber tires, minimum weight 40,000 lbs., from Keokuk, Ia., to East St. Louis, Ill., of 13c per 100 lbs.; Docket No. 6617 proposes to establish a rate on scrap rubber, including tires, from Galesburg to Chicago, Ill., 14c per 100 lbs.

Central Freight Association Docket No. 31170 proposes sixth class rates on reclaimed rubber and rubber shoddy, carloads, minimum 40,000 lbs., and fourth class less carloads; Docket No. 31171 proposes 20 per cent. of first class on scrap rubber and tires, carloads, minimum 30,000 lbs., which is a reduction from the present sixth class basis.

EDITORIAL COMMENT

Cheap Japanese Footwear

SEVERAL weeks ago the North British Rubber Co., one of the largest manufacturers of rubber footwear in the United Kingdom, was forced to close down temporarily because of the influx of Japanese footwear at prices far below the cost of British production.

Recently it is reported that the Belgian rubber footwear industry has been completely disrupted by a like importation of Japanese rubber shoes in huge quantities.

The American industry is now facing a similar situation with the recent importation from Japan of hundreds of thousands of pairs of a cheap variety of rubber-soled tennis shoes which have been retailing throughout one of the better known five-and-ten cent store chains for twenty cents per pair.

The tariff conditions which permit the importation of such footwear in competition with our own demoralized shoe industry are deplorable. Every pair of these Japanese shoes sold over the counter is literally taking the bread and butter from an industry which deserves more diligent protection at the hands of the Federal Government. The rubber footwear industry in the United States has been sorely tried throughout this period of economic depression, and it would seem a cruel blow, indeed, to have it face the Oriental competition to the tune of twenty cents a pair, for tennis shoes.

It is a sad commentary on conditions to realize that America—once supreme in the world's markets in rubber footwear—has not only bowed her head to Japan and has had to be content to accept second place, but is now forced to stand idly by and see Japan make inroads in our very domestic markets and lay down huge stocks of cheap rubber footwear at prices far below domestic cost of production. Well might the distraught American rubber footwear manufacturer question the efficacy of a Federal tariff policy. Here is a specific example where tariff—protective or otherwise—has certainly not been effective. The situation appears all the more deplorable when one considers the degree of unemployment prevailing in the domestic rubber shoe industry. The actual sale of these several hundred thousand pairs of Japanese shoes, had they been of American make, would have gone far to have kept the shoe factories of the United States working at least to that extent that less men and women would have been walking the streets adding to the unemployment situation and in many instances seeking community assistance.

If Congress seeks to assist American industry in this hour of need it has a glaring opportunity in the rubber shoe industry. A tariff wall against these cheap Japanese importations should be enacted immediately.

Returning to the Farm

AN ENCOURAGING note is being struck by those leaders in industry who are advocating and cooperating in the farm and truck garden movement for factory employes and for the vast army of unemployed who do not know where their sustenance for the coming winter is coming from. Harvey S. Firestone, in a recent address, stated that many are returning to the farm for "health, courage and thrift." Henry Ford has long been an advocate of this movement and in recent newspaper advertisements gave his views at length on this subject.

Not only have these men and many other industrial leaders advocated and talked about this plan, but they have made possible by the donation of land, seed, water, tools and transportation facilities, the growing of many thousands of dollars of vegetables which will help reduce the cost of living during the coming winter for those who avail themselves of the opportunity.

It is pleasant to record that the rubber industry has been to the fore in this movement. Both the Firestone and Goodrich companies have made available hundreds of acres of suitable land and have in addition provided the other necessary facilities, supervision and funds so that the greatest possible crops might be grown.

That more is to be gained from this experiment than the mere growing of vegetables is conceded by the leaders in the movement. In addition to the material benefits, there is no doubt that the morale of the workers and the unemployed will be greatly elevated, self-reliance will be developed and a great amount of good-will will be engendered for the companies sponsoring the plan.

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

GOODRICH STARTS HUGE 'CO-OP' GARDEN

One of the most largest cooperative gardening projects ever attempted has been announced by the B. F. Goodrich Company, Akron, Ohio.

Designed as a program by which former Goodrich employes and part-time employes of the company will be given an opportunity to raise their own vegetables, a tract of 275 acres has been obtained and put to cultivation near Akron. Workers on this 275-acre garden will receive shares of the produce in proportion to the time individually expended.

To carry out the program a non-profit corporation, The Akron Community Gardens, Inc., was organized and a state charter obtained.

Goodrich, sponsoring this particular plan, is also supplying the necessary funds. Company trucks are transporting workers to and from the plot and each man who applies is assigned specific days on which to work.

The primary purpose of the plan is to provide an opportunity for men on short hours or who are not now employed to assure themselves and their families of a food supply by utilizing idle time.

Decision to concentrate on an immense garden, rather than on small, individual gardens was made because production of large acreages of each vegetable in soil specially prepared is less wasteful than planting all kinds of vegetables in smaller lots, agricultural experts say.

Men cultivating large acreage under expert supervision and instruction need not be expert farmers to get results. On days when some workers are unable to tend garden, others are carrying on the work.

NORWALK TIRE PLANS BATTERY PRODUCTION

The Norwalk Tire & Rubber Company, Norwalk, Conn., whose plant is now devoted entirely to the manufacture of automobile tires and tubes, will diversify its production this summer by the inauguration of a department for storage batteries, according to John W. Whitehead, president.

Production of the batteries is scheduled to start about July 1, Mr. Whitehead and H. C. Miller, secretary, announce. Operations at first will be on a small scale.

Space in the company's plant has been set aside for the new department, and Albert Mayer, of the Grand & Mayer Company, Detroit, will supervise the installation of equipment. The Grand & Mayer Company has been building batteries for the past 15 years, and a similar type will be made in Norwalk.

Tire sales of the Norwalk Tire and Rubber Company for May, 1932, showed an increase of 10 per cent. over May, 1931, and 75 per cent. over the same month in 1930. Tube sales were up 33 per cent. over 1931 and 300 per cent over 1930. The tube, tire, milling, accessories and curing departments entered on a six-day schedule of 24-hour activity June 1, with time varying from 12 to 18 hours daily.

U. S. RUBBER CO. GETS $2,421,873 TAX CREDIT

An income and profits tax credit of $2,421,873 in favor of the United States Rubber Company for the years 1919 and 1920 was announced June 1 by the Internal Revenue Bureau. $1,574,763 of the over-assessment resulted from revisions of reported valuations of inventories. Allowance of additional deductions for depreciation caused $278,144 of the over-assessment.

Other factors included the allowance of deductions for amortization of the cost of facilities installed or acquired after April 6, 1917; additional deductions for business expenses, elimination of portions of gross income, credit for foreign taxes and elimination of the net incomes of several subsidiary corporations.

Frank W. Thropp

Frank W. Thropp, 59 years old, one of the prominent business men of Trenton, N. J., died May 27 at his home at Morris Heights, Pa., after an illness of five years. He was president of the Eureka Flint & Spar Company and a member of the firm of DeLaski & Thropp, manufacturers of tire making machinery. He was formerly a member of the firm of John E. Thropp Sons Company, machinery manufacturers.

Mr. Thropp was a member of the official board of Gethsemane Baptist Church, Trenton, and one of the founders of that church. He was a member of the Masonic Fraternity and Knights Templars. He is survived by a widow, a son and two daughters.

ARTHUR W. CARPENTER, manager of testing laboratories, B. F. Goodrich Company, will attend the 35th annual convention of the A. S. T. M. in Atlantic City, June 20. Mr. Carpenter is secretary of the Rubber Products Committee.

TWO NEW CONTRACTS ADOPTED BY EXCHANGE

Members of the Rubber Exchange of New York, Inc., today, adopted on May 31 certain amendments and additions to the by-laws of that organization which permit the immediate trading in two new contracts, the "No. 1B Standard," and the "AB."

The principal features of both new contracts are that they provide, in the event the United States government levies a duty or tax on crude rubber imports, the delivery of rubber in bond in warehouse, or in bond on dock in the port of New York. In all other respects the new contracts are similar to those now in use, namely, the "No. 1 Standard" and the "New A."

Trading in the new forms was effective on the Rubber Exchange of New York, Inc., at the start of business, June 1, 1932. Trading and deliveries in the No. 1 Standard and the New "A" Contracts will terminate, the membership decided, in April, 1933.

Flower Rubber May Move

If present plans materialize, according to leading interests in Fostoria, Ohio, the plant of the Flower City Rubber Co., now located in Monroe, Mich., may move to Fostoria. This company moved to Monroe from Chicago about a year ago but has not been in operation due to the failure of two local banks. Efforts are now being made to raise a loan sufficient to cover the moving expenses to Fostoria. If the plan succeeds, it is expected that the plant will be in operation within a few weeks. The company manufactures rubber gloves, stair treads, balloons, etc.

Earn Safety Award

Workers in the engineering and miscellaneous departments of the B. F. Goodrich Company have just completed the first month in history without a lost time accident.

At midnight Tuesday, May 31, they hoisted a huge banner into place on their bulletin board, proclaiming that fact and urging continuance of the effort during June in a final drive to capture the John Noonan safety trophy, another award of which will be made in a month. The mechanical goods department now has the trophy.

Engaged in some of the most hazardous work around a rubber plant, employes in the Goodrich engineering and miscellaneous departments number about 1,800.

GOODRICH EMPLOYES AID EX-FELLOW WORKERS

Committee handling a voluntary relief fund for tire division employees of the B. F. Goodrich Company recently reported to Earl H. Bardner, general superintendent of the tire division, that they had investigated 104 cases during the winter, and furnished relief to 94.

Starting last winter as a project to furnish assistance to former employees in the tire division who needed help, factory workers volunteered to give five cents a week for eight weeks, and office workers, 10 cents a week.

With this system, nearly $1700 was collected and expended to furnish food, clothing, pay rent, gas and light bills in some cases and to furnish other necessary assistance to former tire division workers.

The committee, Harry Cash, Earl Culick, and Fred Comey gave many extra hours during the winter in carrying out the relief for their fellow employees in the tire division.

Pacific R. and H. Elects

At a recent meeting of the board of directors of the Pacific R. & H. Chemical Corporation, El Monte, California, C. K. Davis was elected chairman of the board; Dr. E. A. Rykenboer, president; F. S. Pratt, vice-president; A. Frankel, treasurer; H. A. Schumacher, assistant treasurer; L. Rice, secretary; and J. L. Fahs, assistant secretary.

The Pacific R. & H., a subsidiary of the Roessler & Hasslacher Chemical Company, Inc., New York, N. Y., is one of the largest manufacturers and distributors on the Pacific Coast of Liquid HCN and Cyanides for fumigation purposes, and also manufactures reclaimed rubber.

Rubber Shipments Increased

After a series of monthly declines, crude rubber shipments from British Malaya increased during May, the total as reported to the Rubber Exchange of New York on June 1 by cable being 40,297 tons, compared with 36,670 tons during April, and with 44,281 tons during May, 1931.

Ceylon also reported more of the commodity, reporting a total of 4,138 tons, against 3,043 tons during April and 4,535 tons during May a year ago. Of this quantity, 2,300 tons were shipped to the United States, against 1,761 tons in April and 3,152 tons during May, 1931.

Faultless Pays Dividend

The Faultless Rubber Co., Ashland, recently declared its quarterly regular dividend of $.50 on its common stock payable July 1 to stock of June 15.

Robert E. Tyson

The president and founder of Tyson Brothers, Inc., Woodbridge, N. J., Mr. Robert E. Tyson, died at his residence in Westfield, N. J., on April 30. Mr. Tyson was president of the company since 1909. The company is a well-known manufacturer of rubber substitutes.

Old Tires as Smudges

Apple growers in North Central Washington are using old tires as smudges to keep frost away from their trees. Carloads of scrap tires are being brought in from Seattle. The old tires are placed three or four deep under each tree to be lighted for smudges in case of frost.

LINCOLN RUBBER CO. IS GRANTED CHARTER

Papers of incorporation have been recently issued to the Lincoln Rubber Co., Inc., 941 Wooster rd., Barberton, Ohio.

Plant officials explained that a reorganization had been effected and that new officers would be named shortly. Under the charter granted, the corporation can issue 250 shares of no par stock.

The factory in Barberton has been operating steadily, officials stated. F. E. McCoy is president and C. H. Scheneman vice-president, and E. E. McNeely is secretary.

Young Visiting in U. S.

Mr. H. C. Young, formerly works director of the Dunlop Rubber Co., Ltd. (Chas. Macintosh & Co., Ltd., branch), and recently appointed to the staff of India Rubber & Gutta Percha Co. (Silvertown Co.), arrived in this country recently for a tour of the leading rubber factories in Canada and the United States. In addition Mr. Young will investigate the uses of rubber in the transmission of power and conveying of materials in the mining and quarrying industries.

Ask Firestone Aid in Liberia

Demands were made recently on the Firestone Tire and Rubber Company by the Liberian Committee of the League of Nations to reduce its 1,000,000-acre concession in the African republic, and to increase its concession rentals.

The demands were filed by the league as a means of rehabilitating debt-ridden Liberia, and of making it possible for the nation to protect itself against internal dissension which has resulted, according to the league's report, in "tragic conditions."

The proposed rental in the future was to be 50 cents an acre.

Suit Over Mineral Rubber

H. N. Richards Chemical Company, Trenton, was recently given a verdict for $524 against the Pocono Rubber Cloth Company, also of Trenton. At the same time the jury gave a verdict to the Pocono company for $3,858 against the Richards company. The Pocono company claimed that mineral rubber furnished for use in making rubberized auto tops contained hard particles and compelled the firm to go to extra expense in refining. However, the Richards company sued for $3,912 as the value of materials delivered and that claim was not opposed.

AKRON GROUP PLANS OUTING AND DINNER

The Akron Rubber Group will hold a summer meeting and outing at the Silver Lake Country Club on Monday afternoon and evening, June 13th. Contrary to usual custom the day will be devoted mainly to sports. Facilities are provided for golf, tennis, horse shoe pitching and swimming.

Rubber goods manufacturers and suppliers have been most generous in contributing to this meeting and there will be prizes for all contestants. Golf play and sporting events will start after 3 o'clock P. M. Dinner will be served at 7 o'clock P. M. and an interesting, educational film has been secured for the evening program.

GOODRICH IS PLANNING CZECHOSLOVAKIA PLANT

It is reported that the B. F. Goodrich Co. is negotiating with the Kudrnac-Everit Rubber Co., of Nachod, Czechoslovakia, for the manufacture of Goodrich tires in that country. No confirmation of this report has been obtained but it is said that a working arrangement has been in effect for several months and that tires of Goodrich design have been made in the Czech plant. In addition to tires it is said that the plant is a large producer of rubber shoes.

"Cantslip" Rugs

The "Cantlsip" rug, now being marketed by the Shelton Looms, 1 Park Avenue, New York City, N. Y., is a new development in the combining of pile fabric with a rubber back to precent slipping on highly polished floors. The rug is washable under ordinary laundry conditions and needs no special care. The colors are fast pastel shades. The edges of the rug are well whipped and will not ravel from wear or laundering. They are made in a wide variety of colors to blend with modern interior decorations. They are popularly priced, retailing at $1.00 for size 18 x 36 inches.

Rubber Stock Quotations

	Last Price		—1932—	
	June 16	May 19	High	Low
Aetna	1⅝	1⅝	3	1⅝
American Hard Rubber	—	—	—	—
Faultless	—	19	25	12
Firestone	11	12	15	10¾
do. 6% pfd.	47	49	59½	45½
Fisk	⅛	¼	⅝	⅛
do. 1st pfd.	—	—	⅞	¼
General	25	45	42¾	25
do. pfd.	—	60	—	—
Goodrich	3	—	5⅝	2¼
do. pfd.	8¼	—	17	7
Goodyear	7⅞	9½	18	5½
do. 1st pfd.	23¼	32	61	19¾
India	—	1½	7	½
Kelly-Springfield	1	1	2⅝	½
do. 6% pfd.	18	—	30	16
Lee	2⅛	—	2⅛	2
Mohawk	1	1⅛	2½	1
do. pfd.	20	20	—	—
Norwalk	—	—	—	—
Pirelli	22¼	—	31⅜	21
Raybestos-Manhattan	5¾	5¾	11½	4⅞
Seiberling	1	1½	4½	1
do. pfd.	—	15	22	15
Thermoid	1½	1¼	3	⅞
U. S. Rubber	2½	3	5⅝	1¼
do. pfd.	4½	5	11½	3¾

Names in the News

T. G. GRAHAM, vice-president of B. F. Goodrich Company, accompanied by W. W. MARTIN, managing director of the Goodrich French factory, sailed May 17 for Europe on the *Leviathan*. Mr. Graham will go directly to the French factory but will also visit the plant in Leyland, England, where Goodrich products are manufactured. He is expected to return in six weeks.

CLIFFORD H. OAKLEY, president of the Essex Rubber Company, Trenton, N. J., has returned to his office after having been ill at his home for some time.

ALFRED H. BRANHAM, vice-president and receiver of the Murray Rubber Company, Trenton, N. J., has been on a lengthy business trip through the west.

BRUCE BEDFORD, president of the Luzerne Rubber Company, Trenton, N. J., and his family have returned from a cruise to the West Indies.

JAMES P. FLYNN, general manager of the Puritan Rubber Company, Trenton, N. J., covered all the principal cities in the west and far west on a business trip which occupied more than three months. MIAH MARCUS, president of the Puritan Company, is on his annual trip through Europe.

P. J. KELLY, assistant to the general tire sales manager, B. F. Goodrich Company, and P. C. HANDERSON, director of advertising, represented the company at the annual convention of the Association of National Advertisers in Cincinnati, May 19, 20, and 21. Mr. Kelly, a vice-president of the national advertising group, conducted the meeting at which new members are received.

HARVEY S. FIRESTONE early this month was appointed one of a committee of fifteen leaders in the financial and business world of the midwest by Eugene Meyer, Governor of the Federal Reserve Board, Washington, D. C. This special committee is to devise means to loosen credit, recommend legislation, advance money and take any other steps which will help the unemployment situation.

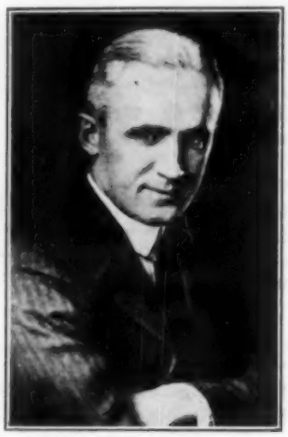
W. D. SHILTS, Secretary of the Goodyear Tire & Rubber Co., sailed late in May from Vancouver to be gone six months in the Far East. He will visit Goodyear organizations in New Zealand, Australia, Singapore, Java and India.

HENRY SCHIPPEL, Goodrich tire designer, attended the annual meeting of the National Advisory Committee for Aeronautics held at Langley Field, Virginia, late last month.

HARVEY S. FIRESTONE, JR., Vice-President of the Firestone Tire & Rubber Co., officiated as referee of the 500 mile automobile race held in Indianapolis on Decoration Day.

U. S. Promotes Simpson

ANNOUNCEMENT was made by the United States Rubber Company that sales activities of the tire and mechanical goods departments have been combined under the direction of L. M. SIMPSON. For the last three and a half years Mr. Simpson has



L. M. SIMPSON

been general sales manager of the tire department.

That he may be more conveniently located for contacting both the mechanical goods plant in Passaic, N. J., and the tire plant in Detroit, Mr. Simpson will establish headquarters in New York City.

Expansion of Mr. Simpson's sales duties comes from recognition of his accomplishments in merchandising tires. Under his administration, the tire department has made marked progress. No greater proof of this progress could be offered than the fact that in 1931, when business in general was declining, the United States Rubber Company sold more tires than in any previous year in its history.

Notable progress has been made, too, under the Simpson regime in strengthening the dealer organization. Instead of adhering to the more simple plan of increasing the number of dealers, Mr. Simpson has consistently followed the policy of increasing the sales activities of a more select dealer group.

Mr. Simpson has been with the United States Rubber Company 15 years. Prior to his appointment as general sales manager of the tire department he served one year as central division sales manager. Before that he gained wide experience with company branches in all parts of the country.

W. W. MARTIN, managing director of the Societe Francaise B. F. Goodrich, Colombes, France, arrived early in May for a series of conferences with executives of the B. F. Goodrich Company.

PAUL W. LITCHFIELD, Goodyear Tire & Rubber Co., was presented with the Spirit of St. Louis Medal at the annual meeting of the aeronautic section of the Society of Mechanical Engineers, held in Buffalo on June 7. The medal was given to Mr. Litchfield in recognition of his conspicuous services to the air industry.

CHESTER D. RUDOLF has recently joined the LaCrosse Rubber Company, of LaCrosse, Wisconsin, in the capacity of factory manager. Mr. Rudolf was for a number of years superintendent of the Beacon Falls Rubber Shoe Company's plant, and just prior to going with LaCrosse had charge of the Beacon Falls Tennis Shoe Department of the United States Rubber Company's plant at Naugatuck, Conn.

E. R. BELL, manager of the accessories department of the B. F. Goodrich Company, was elected chairman of the Tire Accessories and Repair Materials Committee of the Rubber Manufacturers' Association at the annual meeting held recently in the Mayflower Hotel, Akron. Bell succeeds Willard Seiberling, of the Seiberling Rubber Company, as chairman of the group. C. C. Buckmaster, of General, was elected vice-chairman.

S. COLLIER, Chief Chemist of the Johns-Manville Corp., Waukegan, Ill., was recently elected Vice-Chairman of the Chicago Rubber Group. Through an error the name was reported as Wm. Collier in our last issue.

J. E. HALE, of the Firestone Tire & Rubber Co., was elected President of the Tire and Rim Association at its annual meeting held recently in Cleveland.

A. H. PHILLIPS, foreman of the milling, calendering and inner tube departments of the Pacific Goodrich Company at Los Angeles, Calif., was honored at a party given by 28 executives of the Goodrich tire division recently at Snake's Head Point, Turkeyfoot Lake, Akron. Mr. Phillips, who is combining a vacation to his former home in Kent with study of new methods at the Goodrich plant, drove from Los Angeles to Akron, 2630 miles, in 96 hours elapsed time, an average of about 30 miles an hour.

F. R. HENDERSON, organizer and former president of the Rubber Exchange of New York, is now in charge of the Rubber Department of Clark, Childs & Co., 11 Broadway, New York City. This company recently joined the Rubber Exchange and will endeavor to develop a rubber business.

L. B. PROCTOR has joined the staff of Herron & Meyer, 82 Beaver St., New York City. Herron & Meyer are crude rubber dealers in addition to being sales representatives for Palmer black and Heveatex. Offices are also maintained in Akron and Chicago.

Rubber News Around the World

DUNLOP PLANTATIONS SHOW DROP IN COSTS

The report of Dunlop Plantations, Ltd., for the year ended October 31, 1931, gives the company's f.o.b. rubber costs, including all estate, manufacturing, and general charges in the East, but excluding depreciation, as 3.056d. (6.112 cents) per lb. for sheet rubber, against 4.409d. (8.818 cents) for 1929-30, while for 1931-32 to the date of the report the figure is 2.46d. (4.92 cents). The directors state that further reduction in cost is expected in the current years. The reductions have not been effected at the sacrifice of efficient upkeep. The output for 1930-31 was 23,310,941 lbs., an increase of 646,459 lbs.

The directors express the opinion that, with the decision that artificial restriction methods were impracticable and undesirable, the position of the industry will steadily become healthier. Scientific methods, with the greater yield expected and with rigid economy, should result in the company being in the forefront of the industry when more prosperous times return. The board sees no reason why in the future efficiently managed rubber estates should not be a profitable investment.

The accounts show a trading profit of £19,935 ($99,675), against which there is £53,353 ($266,765) for depreciation, giving a net loss of £33,418 ($167,900), compared with a net profit in 1929-30 of £159,291 ($796,455). After transferring £50,000 from general reserve and adding £3,567 brought forward, there is £20,149 available. The preference dividend, less tax, for the year ended November 30, 1931, amounting to £112,500 ($562,500) has been paid by the Dunlop Rubber Company under its guarantee. There is a contingent liability on the Plantations company to repay this amount out of future profits. The fall in earnings is entirely due to the fall in selling prices, the average realized being 3.269d. (6.538 cents) less than for the previous year.

Scrap Shipments to Spain

There is an important consumption of scrap rubber in Spain in the production of soles for "alparagatas," a type of canvas footwear, used by the poorer classes of the country. According to local reports the rubber is ground up and submitted to heat and pressure by which it is converted into solid pieces to be made into rubber soles. These soles are rapidly replacing "jute soles" in the Spanish market and their manufacture now tends to center in the city of Elche.

The importation of pieces of scrap rubber (only old tires and tubes) less than 0.5 meters long amounted to 2,054,580 gold pesetas ($396,534) in 1928; 1,329,440 ($256,582) in 1929; and 901,250, ($173,941) in 1930. The share of the United States was approximately 63 per cent in 1928; 58 per cent in 1929; and 48 per cent in 1930.

The importation of pieces of scrap rubber in strips of less than 0.05 meters wide was valued at 3,235,056 gold pesetas, $624,366 in 1928; 7,871,259, $1,519,152 in 1929; and 10,938,205, $2,111,074 in 1930. The United States accounted for approximately 45 per cent in 1928, 48 per cent in 1929, and 62 per cent in 1930.

Grouping of Estates Urged

Walter Fletcher, vice-chairman of the London Rubber Trade Association, en route to England following a tour of Malayan rubber plantations, predicted in a statement made at Honolulu, that the crude rubber industry would witness a return to normal prosperity within a reasonable time if estates were reorganized on strict business lines and the financially weak units were absorbed by stronger ones.

He advocated a system of group management for estates with one white manager in charge of several plantations. He also urged the formation of well organized and financed buying companies to include representatives from the tire industry and other consuming interests and to put selling by the estates on a local basis. He severely criticized the milking of rubber estates by agencies and declared that this and other similar practices must be stopped.

Rubber Production Maintained

Production of rubber on small estates in Malaya during April, totaled 11,596 tons and that on large estates, 18,968 tons, according to the Far Eastern Census figures cabled to the Rubber Exchange of New York, Inc., recently. The corresponding figures for March were 11,434 tons and 18,462 tons, respectively.

Stocks on estates amounted to 20,730 tons at the end of April, as against 20,831 tons at the close of March, while dealers' stocks totaled 26,712 tons, compared with 27,416 tons in March.

Bata Factory in India

Bata, the well-known Czechoslovak shoe manufacturer, recently purchased, according to Department of Commerce reports, an oil refinery in Konogaru, India, which he plans to convert into a rubber footwear factory. The machinery for the factory is being set up in Zlin for a two weeks' trial, after which it will be shipped to India. Technical experts will accompany the machinery to India to install it and put it in operation. Through the establishment of the Indian factory Bata hopes to lower the prices of his shoes in that country.

RUBBER BAYONETS FOR BRITISH MILITARY 'TATTOO'

Rubber bayonets looking exactly like the genuine steel article, with silvery gray blades and black handles, will be used at the battle of Inkerman, to be presented at the famous "Tattoo," to be held at Aldershot, England, during this month. At the moment a well-known rubber firm is busy fashioning 1,600 blades for use in the famous spectacle.

Viceroy Mfg. Co. Reports

Viceroy Manufacturing Company, formerly Canadian I. T. S. Rubber Company, reported a profit of $34,884 for the 18 months ended February 29, 1932, after payment of bond interest. The first financial statement of the company to be issued since $300,000 of 6½ per cent first mortgage bonds were sold in 1930 shows current assets at $304,587 and current liabilities of $166,324. Surplus at February 29 was $104,504.

Surplus brought forward at the start of the 18 months' period is shown at $146,406 to which is added $29,177 surplus arising from redemption of preferred stock, but reserves for crude rubber commitments at February 29, 1932, reduced surplus by $93,438. During the period $12,525 was paid out in preferred dividends. The preferred dividend is payable semi-annually and initial payment of 3 per cent was made June 1, 1931, for the half-year ended February 28.

Mandelberg Has Severe Loss

A very severe drop in earnings is announced by the big British raincoat firm, J. Mandelberg and Company, Manchester. The net profit for the year ended December 19 last amounted to only £2,442 ($12,210), against £35,878 ($179,390) for the previous year, and it has been necessary to transfer £61,000 ($305,000) from reserve to meet the loss consequent upon the liquidation of the company's American holdings.

Despite this, however, the usual dividend of 8 per cent has been declared on the preferred stock, though the ordinary stock gets nothing. Referring to the liquidation of the American holdings, the directors state that although this step could not be taken without considerable loss, they decided it was the only prudent policy.

Dutch Areas Abandoned

The government bureau for statistics of the Netherlands East Indies have reported that tapping of rubber trees on 256 "estates" in the Dutch East Indies has been completely abandoned, while tapping on 130 other estates has been partially abandoned. The abandoned rubber area in the Dutch rubber growing territory is now 49,187 hectares, equivalent to about 122,967 acres, not including periodically tapped estates, or 13 per cent of the total tappable area.

STALWART RUBBER CO. INCREASES PLANT SIZE

An order for 10,000,000 tires for coaster wagons and other toy vehicles recently received by the Stalwart Rubber Co., Bedford, Ohio, is behind the increase in the size of the company's plant which was recently started. The plant is being enlarged by 36,000 square feet of space, which will provide sufficient additional capacity so that washers, gaskets and packing can be manufactured in addition to garden hose and molded specialties in which the company has specialized for some years. Herman Osborn is President.

Writes Book on Depression

A well-known rubber research chemist, D. Repony, of Clifton, N. J., employed by a large rubber company in Passaic, N. J., has recently issued and sent out to leaders in business, financial and governmental circles, a book entitled, "When and How We Will Get Out of This Depression." The book is the result of a long study of economic conditions surrounding the present plight of the world and attributes conditions to cut-throat competition and suggests that nothing but a rearrangement of our social structure will get us out of the chaos of depression. He advocates the repeal of the Sherman anti-trust law and shorter working hours.

Mansfield Tire Busy

All departments of the Mansfield Tire & Rubber Co. swung into capacity production on June 6 as a result of a 25 per cent increase in sales of tires and tubes, says George W. Stephens, president and general manager.

Mansfield dispatches say the working schedule of three eight-hour shifts assures full time employment for more than 1,100 men, some of whom have been working only part time. Approximately 100 others have been called back after a layoff. The full time schedule will mean a $30,000 pay roll increase for the month of June, it is said.

Raybestos Shows Loss

During the quarter ended March 31, 1932, Raybestos-Manhattan, Inc., incurred a net loss of $10,872.45 after charges of $141,546.45 for depreciation. Net sales were $2,361,176 compared with $3,494,748 during the corresponding period of 1931. Net income for the first three months of 1931 showed a profit of $241,203.

The directors declared a dividend of fifteen cents per share, payable June 15, 1932, to stockholders of record at the close of business May 31, 1932.

Lee Reports Six Months Loss

Report of Lee Rubber & Tire Corp. for six months ended April 30, 1932, shows net loss of $49,476 after depreciation and interest, comparing with net loss of $193,201 for the six months ended April 30, 1931.

Net sales for the period were $2,556,436 compared with $2,769,713 and $4,211,461 for the corresponding periods of 1931 and 1930.

New Rubber Goods

New Kelly-Springfield Tube

A new reinforced heavy duty tube which is so built as to resist punctures caused by rusty rims, rough or chafed tire beads and "spoke ends," has recently been placed on the market by the Kelly-Springfield Tire Company. The price of the new de luxe tube is only slightly more than that charged for the standard heavy duty type.

In appearance the reinforced Kelly-Springfield tube has certain characteristics which show its superior features. It is much heavier than a conventional heavy tube, gray in color and has a heavy black reinforced section all around the inner circle. This black section is an integral part of the tube.

Besides reinforcing the tube against punctures resulting from friction of rusty rims and rough tire beads, the new Kelly tube makes unnecessary the use of rim strips and flaps. In addition it is said to hold air for a greater period of time since it fits the casing with very little stretch and is made of a heavy, fine-texture rubber stock specially treated on the inside face to arrest air seepage.

Dublchek Valve Cap

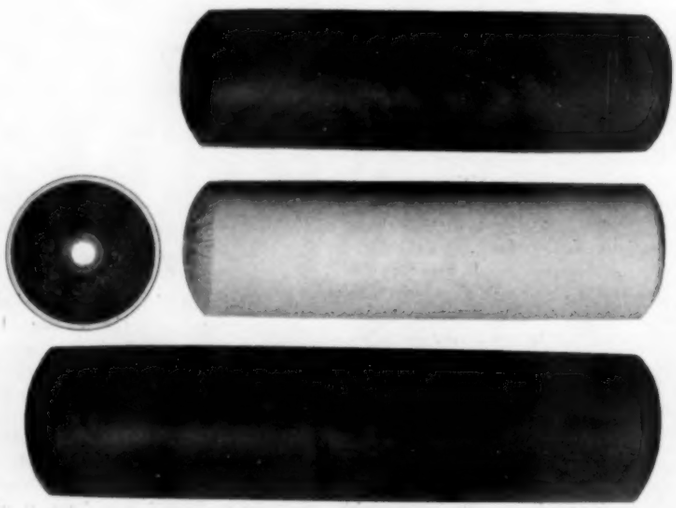
Dublchek is a new airtight and permanent type of valve cap for tire valves. It eliminates the time and labor involved in tire inflation. No need to remove and re-apply valve caps to service tires. Inflating and

pressure testing is done right through the cap. It also excludes dust and dirt. It assures more efficient maintenance of tire pressures which means increased tire mileage and greater comfort. (A. Schrader's Son, Inc., Brooklyn, N. Y.)

Rubber Boat Bumpers

A cushion-rubber boat fender is one of the latest products of the Dunlop Tire & Rubber Company, Buffalo, N. Y., and was exhibited at the recent Motor Boat Show in New York. They are made with a smooth wear-resisting rubber cover and a tough, shock-absorbing cushion-rubber center, and are designed to give an attractive appearance to an otherwise homely piece of equipment on motor boats and yachts. The ends are reinforced with molded washers to prevent flattening out or a crushed appearance. It is claimed that they have a tendency to roll with the boat, rather than bind or grind against the dock, and that they will not mar the paint finish of the hull nor leave stains such as in the case of cork or rope grease.

The fenders are made in three sizes and in two colors, white or mahogany.



Dunlop Bumpers

GOODRICH BRIEFS

Dr. Webster N. Jones, general superintendent of the processing division, The B. F. Goodrich Company, was in New York Thursday, June 2, attending a meeting of the executive committee of the American Institute of Chemical Engineers, of which he is a member.

Members of the B. F. Goodrich Company advertising department held their annual golf tournament at Turkeyfoot Lake Golf course Saturday afternoon, June 4.

The affair was a handicap event with prizes to three low net scores. Eddie Ward, advertising art director, was in charge of the event.

J. F. "Jack" O'Brien, 87 Hurlburt avenue, general foreman of the finished goods warehouse and emergency labor crew of the B. F. Goodrich Company, was stricken seriously ill Friday morning, June 3, while walking from the Goodrich garage to his office. He was taken to City Hospital. He has been a Goodrich employe 18 years and is widely known.

James S. Pedler, B. F. Goodrich Company, aeronautics department, who served as an official at the Omaha Air Races, returned to Akron Wednesday, June 1, with E. W. "Pop" Cleveland, veteran pilot.

INQUIRIES FROM READERS

(Address replies to the Editor, THE RUBBER AGE, *250 West 57th Street, New York City, N. Y., mentioning inquiry number.)*

Sponge Rubber Sheets

An inquirer requests the names of manufacturers of sponge rubber sheets about 1/16" in thickness, with and without cloth backing. Inquiry No. 52532.

Hollow Rubber Balls

Names wanted of concerns who can manufacture flexible rubber balls, 12 inches in diameter with opening of 7 inches in diameter, the balls to hold another ball 12 inches in diameter. Inquiry 52532A.

Let me take care of your CHEMICAL WORK and MANUFACTURING PROBLEMS on a monthly fee basis.

FREDERICK J. MAYWALD
Rubber Chemist
305 Hoboken Road
Carlstadt New Jersey

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

EQUIPMENT WANTED

WANTED: Used latest design No. 11 Banbury Mixers. State price, present condition, age and location. Address Box 669, THE RUBBER AGE.

WANTED: Hydraulic Platen Press, minimum size 4' x 12', three 6" openings preferred, for operation on 2,000-lb. hydraulic, must have 1,000-lb. sq. in., platen pressure. State price, present condition, age and location. Address Box 670, THE RUBBER AGE.

POSITIONS WANTED

THE SERVICES of a Rubber Chemist and Technologist are now available, one who can guarantee to lower compounding and processing costs for practically any type of rubber company. If you want to put some figures on the right side of the ledger, for detailed information, address Box 667, THE RUBBER AGE.

RUBBER TECHNOLOGIST with 15 years' experience in both rubber manufacturing plants and compounding materials service and sale; have had valuable experience in proofing, mechanicals and drug sundries; open for position in either manufacturing or technical sales. Address Box 668, THE RUBBER AGE.

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LIBERAL WORKING SAMPLE FURNISHED FREE

LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JUNE 6, 1932

Crude Rubber

AS LONG as there was any doubt of the import tax on crude rubber, the market was holding up fairly well, but as soon as Congress decided to tax tires and tubes instead of the raw material, prices dropped somewhat, with quotations now being ¼c. since our last report. Activity has been light in view of the continued low production schedules of the larger companies.

The tax on tires and tubes may have a temporary effect in that many will undoubtedly purchase new supplies before June 21 when the tax goes into effect, but it is hardly expected that any appreciable improvement will be felt due to this cause. Little change in quotations can be looked for now and trading on the exchange is not expected to show much increase from recent light transactions.

Prices, as of June 6, on the outside market follow:

Plantations—

Ribbed Smoked Sheets—			
Spot-June	—	@	.02⅝
July	—	@	.02⅝
July-Sept.	—	@	.02¾
First Latex, crepe spot	—	@	.03¾
Amber Crepe, No. 2	—	@	.02⅝
Amber Crepe, No. 3	—	@	.02⅝
Amber Crepe, No. 4	—	@	.02½
Brown Crepe, Clean thin	—	@	.02⅝
Brown Crepe, rolled	—	@	.02¼

Latex—

Liquid Latex, per gal.	.70	@	.75

Paras—

Up-river, fine	—	@	.05½
Up-river, coarse	Nominal		
Acre Bolivian, fine	—	@	.05⅜
Caucho Ball, Upper	—	@	.03

Centrals—

Central scrap	.04	@	—
Esmeraldas	.04	@	—

Balata—

Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

June	1 11/16	@	1¾d
Aug.	1 11/16	@	1¾d
Oct.-Nov.	—	@	1 13/16d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot	—	@	1 7/16d

Reclaimed Rubber

Reclaims still continue to command slightly higher prices than crude as manufacturers are convinced that the many advantages offered by reclaimed rubber more than offset the higher prices. Prices in general show little change with the exception of shoe stocks which are now quoted ¼c. less. Current quotations follow:

High Tensile

High Tensile Red	lb.	.05	@	.05¼
Super-Reclaim Black	lb.	.05	@	.05¼

Shoe

Unwashed	lb.	.04¾	@	.05
Washed	lb.	.05½	@	.05¾

Tube

No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.04½	@	.04¾

Tires

Black	lb.	.03¾	@	.04
Black, selected tires	lb.	.04	@	.04¼
Dark Gray		.05	@	.05¼
Light Gray	lb.	.05½	@	.06
White	lb.	.05½	@	.05¾
Truck, Heavy Gravity	lb.	.05	@	.05¼
Truck, Light Gravity	lb.	.05¼	@	.05½

Miscellaneous

Mechanical blends	lb.	.03	@	.03½

Scrap Rubber

Dealers in rubber scrap are still finding it profitable to decrease their collections of rubber. Demand from reclaimers is light, with the only appreciable demand being for red tubes which are still short in the market. The market is dull, with no changes in quotations except No. 1 tubes which have advanced ⅛-¼c. Quotations follow:

(Prices to Consumer)

Auto tire peelings	ton	18.00	@	20.00
Mixed auto	ton	7.50	@	8.75
Bicycle tires	ton	5.00	@	6.00
Clean solid truck tires	ton	24.00	@	26.50
Boots and shoes	ton	15.00	@	17.50
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.02⅞	@	.03
Inner tubes, No. 2, compounded	lb.	.01¾	@	.01½
Inner Tubes, Red	lb.	.01⅝	@	.01¾
Air Brake Hose	ton	8.00	@	8.50
Rubber Hose	ton	8.50	@	9.00

Cotton

AFTER a slight rise last week cotton declined early this week and now shows a loss of over 50 points since late in May. On June 1, New York futures made a new low when July futures touched 4.99c., an all-time record low for that option. On the same day the spot market was 5.05c., the lowest in 84 years.

High, low and closing prices on the New York Cotton Exchange, as of June 6, follow:

	June 6			May 20
	High	Low	Close	Close
June	——	——	5.04n	——
July	5.26	5.07	5.12	5.78
Oct.	5.47	5.32	5.36	6.02
Dec.	5.61	5.45	5.49	——

(n) Nominal.

Tire Fabrics

Practically no interest is being shown in tire fabrics at this time. The trade has been very quiet with little inquiry reported. Prices have not been affected by low cotton quotations and little change is expected for some time. Late prices are as follows:

(Prices Net at the Mill)

CORD

Peeler, carded, 23/4/3	lb.	.24	@	.24¼
Peeler, carded, 23/5/3	lb.	.22	@	.23
Peeler, carded, 13/3/3	lb.	.20	@	.20¼
Peeler, carded, 15/3/3	lb.	.21	@	.21¼
Egyptian, carded, 23/5/3	lb.	.33½	@	.34½
Egyptian, combed, 23/5/3	lb.	.38½	@	.39½

CHAFERS

Carded, American, 8 oz.	lb.	.18	@	.19
Carded, American, 10 oz.	lb.	.18	@	.19
Carded, American, 12 oz.	lb.	.18	@	.19
Carded, American, 14 oz.	lb.	.17	@	.18

LENO BREAKER

Carded, American, 8¼ oz.	lb.	.18	@	.22
Carded, American, 10¼ oz.	lb.	.18	@	.22

SQUARE WOVEN

Carded, American, 17¼ oz. 23-11 ply	lb.	.23	@	.24
Carded, American, 17¼ oz. 10 ply	lb.	.17	@	.17½

Sheetings

Quotations on most of the sheetings are lower. The market, however, is dull and little interest is being shown by the rubber trade. Prices follow:

40 inch, 2.50 yard	yd.	—	@	.04¾
40 inch, 2.85 yard	yd.	.04	@	.04⅛
40 inch, 3.15 yard	yd.	—	@	.05
40 inch, 3.60 yard	yd.	—	@	.04⅛
40 inch, 3.75 yard	yd.	—	@	.03½
40 inch, 4.25 yard	yd.	—	@	.03⅛

Ducks

Single and double filling ducks are slightly lower than in our last report. The market is quiet. Quotations follow:

Enameling	lb.	.16¾	@	.17¾
Belting and Hose	lb.	.18	@	.18½
Single filling	lb.	.07	@	.07¼
Double filling	lb.	—	@	.09¼

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons

FROM MAY 20 TO JUNE 6, 1932

Date		Spot	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Sales
May	20	2.92	2.94	2.93	2.93	2.96	3.00	3.06	3.11	3.17	3.25	3.30	3.35	3.45	29
	21	2.95	2.95	2.93	2.96	3.00	3.04	3.10	3.16	3.22	3.28	3.33	3.39	3.49	9
	23	2.88	2.87	2.89	2.92	2.96	3.00	3.06	3.11	3.17	3.22	3.27	3.32	3.42	67
	24	2.87	2.85	2.87	2.90	2.95	3.00	3.05	3.10	3.15	3.20	3.26	3.32	3.40	35
	25	2.82	2.81	2.83	2.85	2.91	2.97	3.02	3.06	3.10	3.16	3.21	3.27	3.35	68
	26	2.75	2.71	2.76	2.81	2.86	2.91	2.96	3.00	3.05	3.11	3.16	3.21	3.29	95
	27	2.71	2.69	2.74	2.79	2.85	2.91	2.96	2.99	3.04	3.10	3.15	3.21	3.29	72
	28						(Closed)								
	30						(Holiday)								
	31	2.75	——	2.68	2.73	2.78	2.83	2.89	2.94	3.00	3.06	3.11	3.16	3.24	50
June	1	2.69	——	2.65	2.68	2.73	2.75	2.81	2.87	2.94	3.00	3.05	3.11	3.16	113
	2	2.66	——	2.62	2.65	2.71	2.76	2.81	2.86	2.92	2.98	3.04	3.10	3.16	116
	3	2.66	——	2.61	2.64	2.69	2.74	2.80	2.85	2.90	2.96	3.01	3.08	3.13	45
	4	2.71	——	2.64	2.67	2.72	2.77	2.83	2.88	2.94	3.00	3.05	3.11	3.16	87
	5	2.72	——	2.63	2.66	2.71	2.76	2.81	2.87	2.93	2.99	3.04	3.10	3.16	16
	6	2.68	——	2.62	2.65	2.70	2.75	2.80	2.86	2.92	2.98	3.04	3.10	3.16	25

CHEMICALS

ACTIVITY in compounding materials has been limited to the essentials, with no change in demand since our last report. Factories have not increased their schedules, some having lowered their output during the past month. Prices remain unchanged except for the ¼c. decrease in carbon black put into effect several weeks ago. Quotations follow:

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermic F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Whites			
Lithopone, Albalith	lb.	.04½@	.04¾
Lithopone, Azolith	lb.	.04½@	.04¾
Titanium oxide	lb.	.21 @	—
Titanox B	lb.	.06½@	.07
Titanox C	lb.	.06½@	.07
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾@	.06
ZZ (leaded)	lb.	.05½@	.05¾
Horsehead Lead Free Brand:			
Selected	lb.	.05¾@	.06
Special	lb.	.05¾@	.06
XX Red	lb.	.05¾@	.06
XX	lb.	.05¾@	.06
XX Green	lb.	.05¾@	.06
Leaded Brand, Standard	lb.	.05½@	.05¾
Sterling	lb.	.05½@	.05¾
Superior	lb.	.05½@	.05¾
Lehigh	lb.	.05¼@	.05½
U. S. P., bbls.	lb.	— @	.12¾
Kadox, black label	lb.	.09⅝@	.09⅞
Blue label	lb.	.08⅝@	.08⅞
Red label	lb.	.07¼@	.07½
Cryptone, No. 19	lb.	.06½@	.06¾
Cryptone CB, No. 21	lb.	.06½@	.06¾
XX Zinc Sulphide, bbls.	lb.	— @	.13
St. Joe, black label	lb.	.05¾@	.06
green label	lb.	.05¾@	.06
red label	lb.	.05¾@	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾@	.06
Anaconda, selected lead free	lb.	.06¼@	.06½
Florence White seal, bbls.	lb.	— @	.10⅞
Green seal	lb.	.09⅝@	.09⅞
Red seal	lb.	.08⅝@	.08⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, domestic	lb.	.01⅝@	.02

BLACKS

Arrow "Aerfloted"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Arrow "Aerfloted" Specification, c.l. f.o.b. wks., bags	lb.	.03 @	—
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.02¾@	.07
uncompressed	lb.	.02¾@	.07
"Certified," Cabot			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Disperso" f.o.b. La.	lb.	.028 @	.071
f.o.b. Texas	lb.	.02¾@	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.04 @	.08
"Fumonex"	lb.	.02½@	.06
"Gastex"	lb.	.02½@	.06
Lampblack	lb.	.07 @	.10
"Micronex"			
c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Supreme"	lb.	.03 @	.07
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United, "Dixie" and "Kosmos"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Velvetex"	lb.	.02 @	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	33.00 @	—
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	6.50 @	8.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Kalite No. 1	ton	30.00 @	60.00
Kalite No. 3	ton	40.00 @	70.00
Magnesia, carbonate	lb.	.08¾@	.11
Mica	lb.	.04½@	—
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Tale, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	1.70
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09½@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	28.00 @	48.00
Pioneer. MR, solid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crude		— @	.04½
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.07½@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured, No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06⅛
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.87½
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03¾@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Aromatics- Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.07 @	.09
White	lb.	.08 @	.14
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour,			
Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

IMPORTS of crude rubber during April dropped to a more normal figure of 37,903 tons from the high total of March. Imports of latex (551 tons) are not included in the above imports but are carried in a separate table in this section. Consumption, however, showed no advance and only totaled 25,953 tons, reflecting the conservative tire production schedules which are being adopted by the larger manufacturers. Automobile production in April, while showing an increase, still fails to come up to expectations.

Raw commodity prices, both as regards crude rubber and cotton, touched new low levels. Rubber was particularl steady during the month, with only one upward flurry going above the three cent level. The passage of the tax bill by Congress, eliminating all reference to an import duty on crude rubber, dissipated all uncertainty in this connection and helped to further stabilize the market. Cotton prices touched the lowest since 1898.

Latest figures covering imports and exports of crude rubber from the leading producing and consuming centers have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,788	19.15	36,485	16,868,732	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,572	7.42	471,543
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.90	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,174	1,028,653	14.47	36,819
July	35,182	10,553,944	13.39	2,807	759,260	12.08	32,375
Aug.	35,713	9,666,362	12.08	2,357	655,773	12.42	33,356
Sept.	35,380	8,460,812	10.68	1,514	430,772	12.70	33,866
Oct.	46,069	9,893,980	9.59	2,432	419,325	7.70	43,637
Nov.	29,401	5,700,086	8.66	1,300	271,348	9.32	28,101
Dec.	37,300	7,175,242	8.59	2,168	542,197	11.17	35,132
1931:							
Jan.	36,807	7,190,591	8.84	1,706	350,480	9.17	34,601
Feb.	34,005	6,564,969	8.62	1,799	357,078	8.86	32,206
Mar.	40,393	7,356,505	8.13	2,800	534,180	8.52	37,593
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,233	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,131	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.	43,435	4,742,218	4.72	1,403	198,284	6.81	43,435
Dec.	53,536	5,610,129	4.68	2,462	326,382	5.91	51,070
1932:							
Jan.	33,221	3,387,505	4.55	1,524	185,466	5.43	31,697
Feb.	27,959	2,690,250	4.29	1,915	222,584	5.19	26,044
Mar.	45,197	4,251,801	4.19	2,227	240,128	4.84	42,970
April	37,903	3,181,343	3.74	2,128	196,934	4.13	35,775
May							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

Jan.	29,638	32,196	31,518	34,403	43,002	36,194	28,557	27,962
Feb.	29,761	31,136	30,137	33,702	41,594	33,302	28,797	30,011
Mar.	33,498	32,936	36,141	35,688	44,730	35,540	32,788	27,828
Apr.	34,139	32,696	35,871	32,772	47,521	39,686	33,321	25,953
May	35,322	29,364	34,592	37,333	49,233	39,386	37,817	——
June	35,822	28,598	33,801	37,676	43,227	34,195	37,916	——
July	36,053	27,577	29,219	37,407	41,526	29,508	31,937	——
Aug.	35,909	34,533	33,460	42,927	38,274	30,850	27,586	——
Sept	31,691	32,904	27,214	39,882	34,707	25,515	23,638	——
Oct.	29,047	29,936	26,790	40,857	34,800	27,516	22,277	——
Nov.	28,253	28,080	26,792	37,461	27,659	23,691	22,943	——
Dec.	28,748	26,293	25,492	31,232	23,531	21,687	21,409	——
Totals	388,481	366,149	371,027	441,340	469,804	375,980	348,986	——

Figures on Quarterly Basis

Quarter	1925	1926	1927	1928	1929	1930	1931	1932
Jan./Mar.	95,263	94,301	99,216	103,558	128,565	101,610	89,652	——
Apr./June	104,099	87,109	103,242	103,500	139,292	112,229	107,755	——
July/Sept.	99,493	93,793	89,210	117,573	113,746	85,261	83,632	——
Oct./Dec.	85,789	83,212	80,860	117,597	84,872	72,020	65,645	——
Totals	384,644	358,415	372,528	442,227	466,475	371,120	346,684	——

Note—The Rubber Association estimates its monthly rubber consumption figues to be 80 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Thousands of Barrels of 42 Gallons)

	1930	1931	1932		1930	1931	1932
January	25,731	26,844	26,845	July	38,256	39,459	——
February	26,509	26,133	25,344	August	37,433	39,459	——
March	31,029	31,037	29,451	September	37,823	36,670	——
April	34,549	33,400	——	October	32,267	35,051	——
May	36,497	35,716	——	November	30,984	30,640	——
June	35,902	38,375	——	December	29,094	30,529	——

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1930																																
January	—	15⅞	15⅝	15⅝	—	15⅝	15⅝	15	14⅞	14½	14⅝	—	—	14⅞	14¾	14⅜	14⅜	15½	—	14¾	14⅞	14⅞	—	15⅝	15¼	—	15⅝	15¼	15¼	15¼	15¼	15¼
February	15¼	—	15	15	15¼	15⅝	15½	15⅝	—	15⅞	15	—	—	15⅝	15⅝	—	—	—	16½	16⅜	16½	14⅞	16½	16	16	15⅝	15⅝	15⅝	—	—	15⅝	15⅝
March	15⅝	—	15⅝	15⅝	15	15⅝	15⅝	15⅝	—	—	15	15	15⅝	15½	15⅝	15	—	15⅝	15⅝	15¼	15½	15	15½	15½	15⅝	15½	15⅝	15⅝	15⅝	—	15⅝	15⅝
April	15½	15½	15½	15¼	15¼	—	15¼	15¼	15½	15½	15¼	15½	15⅝	15	15	15	—	—	—	—	15	14⅞	14⅞	14⅞	14⅝	14⅝	14⅝	14⅝	14¼	—	—	15
May	14⅝	14⅜	14⅜	14⅜	14⅜	14⅜	14¼	14⅜	14⅝	14⅝	—	14⅝	14½	14⅝	14⅝	14¼	14⅛	—	—	13⅝	13⅞	14⅛	14¼	14¼	—	14⅛	14⅛	14⅛	14	—	—	14¼
June	—	14⅜	13⅞	13⅜	13	13⅛	13⅞	13⅜	12⅞	12⅝	12⅜	12½	14½	14⅝	12⅝	—	12	12¼	11⅝	11⅝	11⅞	12	12	10⅞	12⅛	12⅛	12⅛	12⅝	12⅝	—	—	12½
July	12¼	12¼	12	—	10½	10½	12	11⅞	11⅝	11¾	11⅜	11¼	—	12¼	11¼	11¼	11⅛	10⅞	10⅝	—	10⅜	10⅞	10⅞	—	10⅞	10⅞	—	10⅝	10⅝	10½	—	11¼
August	10⅝	—	—	10½	10½	10½	10¼	10¼	10¼	—	10	9⅞	9⅞	9⅞	9⅞	9⅞	9⅞	9⅞	9⅝	9½	9¾	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	—	—	10
September	—	9⅝	9⅜	9⅜	9	8½	—	8¼	8⅛	8⅛	8⅛	8¼	8¼	8¼	8¼	8¼	8⅛	8⅛	8	8	8	8	8	8	8	7⅞	7⅞	7⅞	7½	—	—	8¼
October	7½	8¼	8	8	—	7⅞	8	8	8	7⅞	8	8	8	7⅞	8	8	7⅞	8	8	8	8	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅝	8⅝	8¾	8¾
November	8¾	8⅜	8⅜	—	8¾	8⅝	8⅝	8⅝	—	8½	—	9⅛	8⅞	9⅜	9⅜	9	8⅞	9⅜	9⅜	9⅜	9⅜	8⅜	8⅜	8⅜	8⅜	8⅜	8⅜	8⅜	9⅛	8⅝	—	9
December	9½	9½	9½	9¼	9¼	9¼	—	9⅜	9½	9⅜	9⅜	9⅝	9⅜	—	9	8⅞	8¾	9	9⅜	9⅜	—	8⅝	8⅝	8⅝	8⅝	8¾	8¾	—	8½	8⅝	—	9
1931																																
January	—	8⅜	8⅜	—	8½	8⅜	8⅜	8⅜	8⅝	8⅝	—	8⅝	8⅝	8⅝	8⅝	8⅜	8⅜	8⅜	8⅜	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8⅛	8⅛	8⅛	8⅛	8⅜
February	—	7¾	7⅞	—	7¾	7⅝	7⅞	7¾	7⅞	7⅞	—	—	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7½	7½	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞
March	—	7¾	8	8	8¼	8¼	8¼	8¼	—	—	—	8	7⅞	8	—	7⅞	7⅞	7⅞	7⅞	7¾	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞
April	6⅞	6⅝	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
May	6	6	—	6¼	6¼	6¼	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6½
June	6⅜	6⅜	6⅜	6⅜	6½	6½	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6¼	6⅝
July	6⅜	6⅜	6¾	—	5⅝	6¼	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	—	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	5⅞	6⅜
August	5¾	5¾	5¾	5⅝	5⅝	5½	5½	5½	5½	5½	5⅝	5⅝	5½	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝
September	5¾	5⅝	5⅝	5⅝	5⅝	—	—	—	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼
October	4¾	4⅝	4⅝	—	4⅝	4⅞	4⅞	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4⅞	4⅞	4⅝	4⅝	4⅝
November	—	4⅜	4½	—	4½	4½	—	4⅝	4⅝	—	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝
December	—	4⅜	4⅜	4⅜	4½	4½	—	4⅝	4¼	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛
1932																																
January	—	—	—	4½	4½	4½	4⅝	4⅝	4⅝	—	4⅝	4⅝	—	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4½
February	—	4⅜	4⅜	4¼	4¼	4¼	4⅛	4⅛	4⅛	4⅛	4⅛	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
March	—	3⅝	3½	3½	3½	3½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
April	3	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
May	—	3	—	3¼	3¼	3	3	2⅞	3	—	3	3¼	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	—	3
June	—	2⅜	2⅜	2⅜	2⅜	4	4⅜	—	4	3⅞	3¼	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	3⅛

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1925

Year	Cents	Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15	1922	17.50
1911	141.30	1915	65.85	1919	48.70	1923	29.45
1912	121.60	1916	72.50	1920	36.30	1924	26.20
1913	82.04	1917	72.23	1921	16.36	1925	72.46

Average Monthly Price per Pound Since 1926

Month	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents	1932 Cents
Jan.	79.50	38.75	40.25	20.14	15.24	8.34	4.38
Feb.	62.25	38.25	32.75	23.97	15.85	7.70	4.03
Mar.	59.00	41.04	26.82	24.55	15.34	7.71	3.35
Apr.	51.25	40.86	18.97	21.18	14.93	6.43	3.02
May	47.75	40.76	18.99	21.46	14.24	6.49	3.09
June	42.50	37.25	19.59	20.64	12.45	6.35	—
July	41.03	34.87	19.40	21.30	11.24	6.37	—
Aug.	38.50	35.12	19.46	20.59	9.96	5.38	—
Sept.	41.00	33.67	18.47	20.37	8.28	5.08	—
Oct.	42.50	34.32	18.83	19.67	8.20	4.87	—
Nov.	38.50	37.58	18.26	16.62	9.01	4.65	—
Dec.	38.25	40.63	17.97	16.12	9.05	4.64	—
Average for Year	48.50	37.72	22.48	20.55	11.98	6.17	—

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Mar.	Apr.	May	June	Day	Mar.	Apr.	May	June
1	2¼	1⅞	—	—	17	2⅛	—	—	—
2	2¼	1⅞	1⅞	—	18	2⅛	1⅞	1⅞	—
3	2¼	—	2	—	19	2	1⅞	1⅞	—
4	2⅜	1⅞	2	—	20	—	1⅞	1⅞	—
5	2⅜	1⅞	2	—	21	1⅞	1⅞	1⅞	—
6	—	1⅞	2	—	22	1⅞	1⅞	—	—
7	2⅜	1¾	2⅛	—	23	2	1⅞	1¾	—
8	2⅜	1¾	—	—	24	2	—	1¾	—
9	2¼	1¾	2⅛	—	25	—	1⅞	1⅝	—
10	2¼	—	2	—	26	—	2	1⅝	—
11	2⅜	1¾	2	—	27	—	1⅞	1⅝	—
12	2⅜	1⅞	1⅞	—	28	—	2	1⅝	—
13	—	1⅞	1⅞	—	29	1⅞	2	—	—
14	2⅜	1⅞	1⅞	—	30	1⅞	2	1⅝	—
15	2¼	1⅞	—	—	31	1⅞	—	1⅝	—
16	2¼	1⅞	—	—					

Average Monthly Price Per Pound

Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence	Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence
Jan.	9.942	7.471	4.160	3.052	Aug.	10.505	4.880	2.385	—
Feb.	11.875	7.948	3.823	2.760	Sept.	10.160	4.075	2.524	—
Mar.	12.135	7.595	3.822	2.047	Oct.	9.620	4.023	2.898	—
Apr.	10.490	7.391	3.082	1.876	Nov	8.442	4.440	2.890	—
May	10.717	6.926	3.035	1.825	Dec.	7.958	4.516	3.115	—
June	10.580	6.195	3.082	—	Average for				
July	11.065	5.648	3.048	—	Year	10.291	5.926	3.155	—

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Apr.	May	June	Day of Month	Apr.	May	June	Day of Month	Apr.	May	June
1	6.30	—	4.92	11	6.25	5.75	—	21	6.20	5.85	—
2	6.25	5.70	5.14	12	6.25	5.70	—	22	6.20	—	—
3	—	5.75	5.02	13	6.25	5.65	—	23	6.10	5.95	—
4	6.40	5.65	5.22	14	6.25	5.65	—	24	—	—	5.75	—
5	6.25	5.70	—	15	6.25	—	—	25	6.15	5.75	—
6	6.10	5.90	—	16	6.20	5.65	—	26	6.15	5.65	—
7	6.05	5.90	—	17	—	5.65	—	28	6.15	5.60	—
8	6.10	—	—	18	6.15	5.75	—	27	6.25	5.60	—
9	6.20	5.70	—	19	6.10	5.85	—	29	6.25	5.85	—
10	—	5.70	—	20	6.20	5.90	—	30	5.60	—	—
								31	—	5.40	—

Average Monthly Price Per Pound

Month	1929 Cents	1930 Cents	1931 Cents	1932 Cents	Month	1929 Cents	1930 Cents	1931 Cents	1932 Cents
Jan.	20.22	17.21	10.27	6.65	Aug.	18.62	12.03	7.21	—
Feb.	20.21	15.62	10.96	6.85	Sept.	18.83	10.85	6.52	—
Mar.	20.19	15.13	10.90	6.86	Oct.	18.46	10.63	6.32	—
Apr.	20.29	16.39	10.19	6.16	Nov.	17.53	10.96	6.44	—
May	19.41	16.43	9.38	5.72	Dec.	17.28	10.02	6.24	—
June	18.74	14.48	9.05	—	Average for				
July	18.62	13.10	9.28	—	Year	19.03	13.57	8.56	—

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1930	ON HAND 1931	ON HAND 1932	AFLOAT 1930	AFLOAT 1931	AFLOAT 1932	ON HAND AND AFLOAT 1930	ON HAND AND AFLOAT 1931	ON HAND AND AFLOAT 1932
Jan.	131,744	209,487	322,860	61,863	56,187	42,234	193,607	265,674	365,094
Feb.	142,863	212,833	322,117	63,404	63,680	51,728	207,267	276,513	373,845
Mar.	141,843	217,804	334,566	63,646	63,133	44,190	205,489	280,937	378,756
Apr.	148,272	228,382	343,099	63,261	56,700	40,387	211,533	285,082	383,486
May	146,179	220,799	———	68,168	73,564	——	214,347	294,363	———
June	151,551	225,536	———	58,657	69,421	——	210,209	294,957	———
July	152,001	234,822	———	58,326	66,873	——	210,327	301,695	———
Aug.	158,604	240,816	———	61,168	61,469	——	219,772	302,285	———
Sept.	169,927	254,324	———	60,923	62,420	——	230,851	316,744	———
Oct.	185,470	273,456	———	51,122	68,427	——	236,593	341,883	———
Nov.	189,925	292,493	———	52,538	77,443	——	242,463	369,936	———
Dec.	200,998	322,826	———	56,035	53,940	——	257,033	376,766	———

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1930	1931	1932	At end of	1930	1931	1932
Jan.	60,434	81,093	67,166	July	81,048	81,317	——
Feb.	64,557	82,265	65,942	Aug.	80,931	81,560	——
Mar.	68,923	84,736	64,280	Sept.	83,329	79,692	——
Apr.	74,676	86,982	61,848	Oct.	77,647	76,778	——
May	77,312	86,726	——	Nov.	76,887	73,911	——
June	80,260	83,071	——	Dec.	78,013	69,470	——

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1931					
November	76,323	75,256	74,322	73,207	
December	72,904	72,785	71,400	70,043	
1932					
January	69,504	68,967	68,272	67,545	67,157
February	67,410	67,824	67,314	65,923	
March	65,459	65,121	65,014	64,461	
April	63,813	64,015	63,717	63,348	61,850
May	61,411	58,101	58,606		

Stocks in Liverpool

1931					
November	56,284	55,933	56,339	56,366	
December	56,901	57,157	57,116	56,908	
1932					
January	57,718	57,652	58,662	58,328	58,182
February	59,155	59,874	59,514	59,868	
March	60,288	60,776	60,922	60,775	
April	61,010	60,872	61,302	61,433	61,480
May	61,674	60,909	60,583		

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1929	1930	1931	1932	End of	1929	1930	1931
Jan.	29,617	39,727	48,802	48,850	July	33,859	45,459	51,203
Feb.	32,373	44,371	49,283	46,964	Aug.	30,834	48,132	48,971
Mar.	29,437	45,657	49,590	46,591	Sept.	32,138	44,015	47,025
Apr.	26,474	48,473	45,868	——	Oct.	33,770	39,930	52,132
May	30,764	44,715	44,278	——	Nov.	30,963	41,674	46,497
June	30,403	42,451	47,517	——	Dec.	35,548	45,963	45,795

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
1931:					
Jan.	41,620	24,500	3,168		5,124
Feb.	43,027	24,580	3,326		5,404
Mar.	40,227	21,990	3,622	3,857	4,843
Apr.	37,103	18,500	3,659		5,187
May	37,171	17,770	3,380		4,896
June	33,748	18,440	3,219	3,518	4,894
July	40,377	19,960	3,111		4,548
Aug.	40,606	18,880	3,204		4,571
Sept.	37,114	16,200	3,293	2,763	4,972
Oct.	35,381	17,800	3,100		5,465
Nov.	39,193	19,570	2,799		5,506
Dec.	41,219	20,140	2,568	3,607	5,576
1932:					
Jan.	43,938	19,090	3,065		6,342
Feb.	43,695	18,920	3,093		6,641
Mar.	43,329	17,470	3,172		6,378
Apr.	41,642	18,000			6,469

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.8	1929	24,141,502	80.3
1926	24,199,524	78.8	1930	17,364,096	80.1
1931			1931		
January	681,301	67.9	July	812,642	74.0
February	1,010,774	73.9	August	924,236	80.8
March	1,425,336	81.4	September	504,879	70.4
April	1,717,652	79.9	October	281,749	62.7
May	1,508,349	83.7	November	638,138	78.0
June	1,084,707	77.8	December	714,037	80.1
1932			1932		
January	810,759	89.0	March	648,013	81.6
February	726,172	84.3	April	652,126	69.8

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1924	1925	1926	1927	1928	1929	1930	1931
Production	51,633	60,845	61,237	64,439	77,944	68,726	50,965	48,739
Shipments	50,120	59,262	59,002	64,059	74,296	69,395	53,638	48,151
Inventory[2]	7,427	8,142	10,456	10,264	13,624	11,838	9,003	110,233

Figures for Recent Months

	PRODUCTION 1930	1931	1932	SHIPMENTS 1930	1931	1932	INVENTORY 1930	1931	1932
Jan.	4,485	3,675	3,462	4,406	3,744	3,253	11,925	8,957	7,912
Feb.	4,555	3,985	3,871	4,195	3,402	2,553	11,410	9,536	9,172
Mar.	4,863	4,663	3,671	4,717	4,122	2,954	12,513	10,014	9,878
Apr.	5,648	4,944	——	5,089	4,932	——	13,076	10,031	——
May	5,717	5,679	——	5,216	5,415	——	13,432	10,312	——
June	5,122	5,672	——	5,294	5,572	——	13,277	10,447	——
July	3,991	4,926	——	5,447	5,462	——	11,812	9,919	——
Aug.	4,166	3,906	——	5,175	4,960	——	10,848	8,896	——
Sept.	3,365	3,172	——	4,405	3,932	——	9,812	8,158	——
Oct.	3,582	2,974	——	3,499	2,852	——	9,803	8,300	——
Nov.	2,654	2,500	——	2,834	2,887	——	9,595	7,919	——
Dec.	2,814	2,643	——	3,361	2,871	——	9,003	7,744	——

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1924	1925	1926	1927	1928	1929	1930	1931
Production	70,706	82,614	76,618	70,823	80,180	68,829	52,420	48,333
Shipments	68,106	81,004	71,591	72,896	77,127	70,592	54,938	50,021
Inventory[2]	11,052	11,313	16,200	13,692	16,117	12,807	9,999	112,121

Figures for Recent Months

	PRODUCTION 1930	1931	1932	SHIPMENTS 1930	1931	1932	INVENTORY 1930	1931	1932
Jan.	4,607	3,623	3,308	4,857	4,062	3,529	12,704	9,439	7,719
Feb.	4,634	3,916	3,821	4,337	3,400	2,728	13,036	9,921	8,760
Mar.	4,941	4,450	3,502	4,727	3,789	2,686	13,179	10,475	9,448
Apr.	5,510	4,617	——	4,848	4,636	——	13,784	10,413	——
May	5,535	5,413	——	5,074	5,281	——	13,852	10,549	——
June	4,950	5,358	——	5,265	5,397	——	13,612	10,504	——
July	3,939	4,955	——	5,855	5,831	——	11,657	9,589	——
Aug.	4,796	4,435	——	5,762	5,301	——	10,737	8,774	——
Sept.	3,817	3,449	——	4,541	4,150	——	10,065	8,095	——
Oct.	3,951	3,077	——	3,472	2,813	——	10,517	8,321	——
Nov.	2,680	2,443	——	2,788	2,594	——	10,313	8,119	——
Dec.	3,060	2,597	——	3,412	2,767	——	9,999	7,922	——

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	Passenger Cars	Trucks	Canada Total	Passenger Cars	Trucks	Grand Total
1926	4,298,799	3,808,753	490,046	205,002	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931							
Jan.	171,848	138,317	33,531	6,496	4,552	1,944	178,344
Feb.	219,940	180,419	39,521	9,871	7,529	2,342	229,811
Mar.	276,405	231,244	45,161	12,993	10,483	2,510	289,398
Apr.	336,939	285,693	50,015	17,159	14,043	3,116	354,098
May	317,163	269,420	45,695	12,738	10,621	2,117	329,901
June	250,640	208,158	41,304	6,835	5,583	1,252	257,475
July	218,490	183,107	35,854	4,220	3,151	1,069	222,710
Aug.	187,197	155,425	31,772	4,544	3,426	1,118	191,741
Sept.	140,566	109,228	31,338	2,646	2,108	538	143,212
Oct.	80,142	58,415	21,727	1,440	761	679	81,582
Nov.	68,867	49,184	19,683	1,247	812	435	70,114
Dec.	121,533	97,897	23,636	2,432	408	2,024	123,965
Total	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932							
Jan.	119,344	98,785	20,541	3,731	3,112	619	123,075
Feb.	117,418	94,110	23,308	5,477	4,494	983	126,621
Mar.	118,959	99,399	19,560	8,318	6,604	1,714	127,277
April	148,013	120,872	27,141	6,810	5,660	1,150	154,823

Exports of Crude Rubber from Principal Producing Countries

(Long Tons

	BRITISH MALAYA[1]							DUTCH EAST INDIES[4]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,487
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1930:															
Mar.	47,320	12,236	35,084	6,617	1,219	976	642	391	5,796	6,612	11,214	643	1,674	536	71,314
Apr.	43,803	14,627	29,176	4,444	856	1,026	502	366	4,802	6,326	12,724	433	1,201	630	62,486
May	49,016	13,253	35,763	5,968	975	917	502	350	6,352	6,661	12,041	753	1,383	555	72,220
June	36,607	12,120	24,487	4,577	778	1,040	201	392	4,728	4,776	9,512	425	974	551	52,441
July	41,347	12,759	28,588	3,868	792	1,087	600	327	6,022	5,891	9,770	648	810	418	58,821
Aug.	47,802	10,304	37,498	7,077	600	740	600	335	5,892	7,197	9,520	394	809	382	71,044
Sept.	48,529	8,087	40,442	7,966	343	680	600	289	5,960	6,358	7,302	527	1,093	474	72,034
Oct.	47,770	7,312	40,458	7,681	591	598	650	300	5,916	6,956	6,352	667	669	449	71,287
Nov.	41,281	7,774	33,507	6,042	864	631	600*	311	5,334	6,401	8,001	654	658	238	63,241
Dec.	42,086	9,671	32,415	6,934	1,049	976	600*	335	6,254	7,196	8,476	721	1,365	353	66,674
1931:															
Jan.	41,579	11,029	30,550	7,039	1,315	770	542	424	5,923	7,348	10,328	1,218	994	295	66,746
Feb.	41,951	9,672	32,279	6,365	1,041	945	542	409	4,869	7,206	9,001	1,018	1,271	217	65,163
Mar.	48,589	12,009	36,580	5,881	1,209	930	542	536	5,434	7,104	11,258	1,233	1,338	430	72,475
Apr.	43,453	9,977	33,476	4,333	641	788	455	340	6,473	6,063	8,759	327	629	333	62,617
May	44,281	10,479	33,802	4,242	622	869	455	413	7,373	6,799	10,955	793	1,110	382	67,815
June	39,397	12,115	27,282	5,098	1,086	1,138	455	337	5,856	6,696	11,380	1,019	621	351	61,319
July	43,658	11,995	31,663	4,517	715	801	536	316	6,671	7,511	10,711	859	1,565	186	66,051
Aug.	42,832	9,063	33,769	3,763	406	692	535	210	6,397	7,044	8,641	1,097	856	241	63,651
Sept.	44,336	8,369	35,967	4,029	169	701	535	218	5,577	7,358	8,389	917	745	183	64,788
Oct.	45,911	9,955	35,956	5,547	286	872	500*	338	8,086	7,882	9,547	934	1,284	288	71,467
Nov.	48,012	9,529	38,483	4,609	408	830	500*	390	7,351	8,174	7,981	731	872	233	70,562
Dec.	35,741	11,314	24,427	6,346	572	1,115	500*	287	5,942	8,562	9,059	1,550	836	203	59,399
1932:															
Jan.	44,538	10,304	34,234	4,570	732	756	500*	457	5,155	8,815	8,703	1,248	831	200	66,201
Feb.	42,008	8,008	34,000	4,472	803	696	500*	334	4,814	6,011	6,325	1,096	352	150	59,553
Mar.	39,903	6,658	33,245	3,405	284	501	500*	217	4,946	6,863	6,252	928	715	100	57,956
Apr.	36,670	4,682	31,988	3,046		459	500*	130	6,722	6,090	4,856	913	487	100	

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,480	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1930:															
Mar.	40,012	9,862	5,233	4,379	2,593	2,699	1,279	1,153	975	678	358	322	200*	263	74,676
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	929	673	1,431	158	461	200*	255	76,834
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,645	64	1,250	230	274	200*	282	70,602
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,574	67	691	343	507	200*	282	65,569
July	32,785	7,650	3,311	3,449	3,247	1,206	587	567	84	939	172	756	200*	342	55,395
Aug.	34,513	8,369	3,953	3,515	2,108	2,170	886	149	265	888	37	747	200*	450	58,256
Sept.	34,373	16,016	5,285	4,089	1,578	2,606	1,279	1,373	414	824	221	817	200*	411	69,486
Oct.	44,385	9,095	7,403	3,747	1,942	3,951	2,460	2,782	609	769	439	1,132	200*	351	79,265
Nov.	28,437	—250	13,662	3,074	2,128	4,003	2,510	2,140	464	596	364	1,180	200*	343	58,851
Dec.	35,202	12,249	7,149	3,105	1,347	4,104	2,815	544	950	814	205	647	200*	673	70,004
1931:															
Jan.	34,873	9,730	5,954	3,847	1,709	2,861	1,036	1,775	601	986	348	464	240	635	65,059
Feb.	32,572	12,226	4,510	3,374	1,927	3,264	1,393	1,022	495	785	157	476	201	366	62,768
Mar.	37,960	12,335	4,386	3,545	3,012	2,323	418	2,531	435	862	346	400	392	507	69,452
Apr.	42,212	9,440	4,346	3,054	2,070	3,478	528	1,450	457	515	333	495	208	324	68,910
May	33,271	8,212	2,880	3,231	2,748	3,755	1,023	1,034	884	1,153	86	495	180	711	58,663
June	43,730	5,636	4,002	3,504	2,112	2,988	1,462	3,279	1,112	1,058	272	577	207	607	70,546
July	42,293	5,366	3,301	3,226	2,592	3,065	809	3,141	627	1,507	41	429	145	1,074	67,816
Aug.	36,709	5,030	3,393	2,889	2,304	3,780	812	3,137	283	955	—57	321	160	413	60,129
Sept.	37,571	5,468	4,420	4,227	1,535	5,556	693	2,335	269	1,015	191	571	99	499	64,449
Oct.	39,820	5,775	3,909	3,220	1,567	3,980	571	4,076	765	792	185	710	193	695	66,258
Nov.	43,659	2,550	2,669	2,621	1,233	3,340	545	2,417	934	729	183	745	297	954	62,876
Dec.	51,323	4,402	2,696	2,950	2,452	5,003	859	4,474	787	652	135	677	283	932	77,715
1932:															
Jan.	32,028	3,248	2,588	3,303	1,746	5,782	627	3,258	622	765	479	840	462	197	55,945
Feb.	26,483	5,930	2,898	4,356	1,723	6,781	1,189	2,931	758	800	500	708	313	306	55,576
Mar.	43,361	3,585	2,482	3,436	2,588	5,398	1,423		1,211		112	456	359	644	
Apr.	36,326	6,716	2,956		1,600										

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1930	42,681,000	178,059,000	29,514,000	58,465,000
1931:				
January	2,206,000	12,973,000	2,481,000	3,599,000
February	2,184,000	13,156,000	2,724,000	3,711,000
March	2,769,000	14,661,000	2,292,000	4,412,000
April	3,381,000	15,408,000	2,692,000	4,617,000
May	3,050,000	15,474,000	2,885,000	4,231,000
June	3,212,000	17,093,000	3,177,000	3,879,000
July	3,337,000	15,361,000	2,864,000	3,706,000
August	3,787,000	16,293,000	2,933,000	3,356,000
September	4,692,000	15,827,000	2,880,000	3,015,000
October	4,112,000	14,567,000	2,610,000	2,678,000
November	2,529,000	11,455,000	2,840,000	2,300,000
December	2,074,000	14,138,000	3,639,000	2,281,000
1932:				
January	2,184,000	12,317,000	3,411,000	2,463,000
February	2,448,000	14,487,000	3,461,000	2,446,000
March	2,463,000	16,868,000	3,953,000	2,638,000

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	8,332	2,213,964	—	—
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	—	—
1921	58	26,945	814	1,077,859	1,745	351,893	—	—
1922	127	57,040	812	978,765	2,335	493,812	—	—
1923	1,155	542,227	700	898,524	4,565	853,308	—	—
1924	1,356	636,392	464	563,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	854	827,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,208	411,692	5,777	1,019,010	4,650	884,355
1931:								
Jan.	—	—	46	31,870	355	58,897	291	70,708
Feb.	—	—	17	13,801	511	114,100	369	89,470
Mar.	—	—	66	23,568	625	127,803	395	75,285
Apr.	—	—	219	69,284	676	140,309	372	73,867
May	—	—	120	44,025	205	36,086	318	82,202
June	—	—	245	79,786	681	123,616	706	129,496
July	—	—	67	20,777	331	64,493	583	104,868
Aug.	—	—	73	30,207	652	100,536	364	60,358
Sept.	—	—	126	35,174	407	65,232	439	72,443
Oct.	—	—	100	13,846	415	75,219	267	43,238
Nov.	—	—	36	11,539	276	50,062	265	40,649
Dec.	—	—	93	37,815	643	62,657	282	41,771
1932:								
Jan	—	—	54	14,095	633	81,396	331	40,613
Feb.	—	—	100	24,702	558	84,914	439	52,183
Mar.	—	—	114	20,628	460	59,299	391	44,585
Apr.	—	—	46	10,909	317	44,165	551	46,397

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

Year	Consumption: Production	Tons	% to Crude	Stocks*	Year	Consumption: Production	Tons	% to Crude	Stocks*
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1925	132,930	137,105	35.6	13,203	1930	157,967	153,497	40.8	22,000
1930:									
Jan.	15,010	17,454	47.6	24,241	July	12,322	12,384	42.3	23,373
Feb.	15,846	14,559	44.5	24,243	Aug.	12,047	10,985	35.9	22,980
Mar.	17,400	15,241	42.2	24,415	Sept.	11,433	10,480	41.4	21,996
Apr.	17,828	16,904	42.0	24,587	Oct.	12,349	10,724	39.3	21,145
May	17,812	17,052	42.7	23,856	Nov.	10,763	8,816	37.5	24,007
June	15,714	14,063	40.8	24,449	Dec.	10,073	8,449	39.3	24,008
1931:									
Jan.	10,349	10,728	37.6	22,429	July	11,393	11,447	35.8	17,720
Feb.	10,571	10,800	37.5	15,878	Aug.	10,110	9,972	36.2	17,165
Mar.	12,938	12,524	38.3	18,375	Sept.	9,629	8,932	37.6	17,226
Apr.	13,267	11,745	35.0	18,356	Oct.	9,482	8,126	36.6	17,741
May	13,478	13,103	34.6	18,082	Nov.	7,892	7,492	32.6	17,662
June	14,066	13,045	34.4	18,505	Dec.	8,876	6,812	31.8	19,257
1932:									
Jan.	8,753	8,440	30.2	18,712	Mar.	8,613	7,420	26.7	19,721
Feb.	8,731	8,332	27.7	18,659	Apr.	5,561	5,555	21.6	21,525

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,869 tons in 1929.
(Rubber Manufacturers' Association figures raised to 100%)

REVIEW DESK

Books, New Publications, Catalogues, Etc.

THE MANUFACTURING EXPENSE BUDGET. Published by the Policyholders Service Bureau, Metropolitan Life Insurance Company. 24 pp. 1932. For free distribution.

The report is based on a survey of the budgetary practices of a number of manufacturing organizations. The problem of manufacturing expense control and the several types of budget used for this purpose are described and illustrated, and the complete procedure of four companies is outlined and analyzed in some detail. The publication also reproduces several charts and forms that are used in connection with this method of control.

Manufacturing expense budgets are classified under two heads: (1) Budgets prepared without the use of sales forecasts or estimates, and based on past experience and standards; and (2), budgets based upon the volume of expected production as determined from sales estimates. The former method is used by those organizations that find it impractical or impossible to make satisfactory estimates of anticipated sales. When sales estimates are available, however, it is pointed out that manufacturing expense budgets are usually set up in one of these ways: in conjunction with a standard cost system; on the basis of departmental or account estimates; on the basis of normal departmental or standard unit costs adjusted to conform to anticipated conditions. The report likewise discusses the preparation, administration and organization of this type of budget.

A WONDER BOOK OF RUBBER. Published by The B. F. Goodrich Company, Akron, O. 50 pp. 1932. For free distribution.

An interesting story of rubber and the manufacture and use of rubber products. The booklet is entertainingly written and is profusely illustrated. It incidentally embodies the romance of the growth of the Goodrich company and the ramifications of its activities.

NINTH REPORT ON NATIVE RUBBER CULTIVATION. 4th Quarter, 1931. Prepared by the Bureau of Agricultural Economics of the Netherlands Indian Department of Agriculture, Industry and Commerce. 22 pp. 1932.

Latest official figures and data on the production from native areas in the Dutch East Indies. The report indicates a certain decline in native activities, due to prevailing low prices, but substantial areas have not yet reached the tapping age and other large areas have grown to bearing but have not been tapped, showing a large potential yield which might come from these native holdings, in the event of more favorable price conditions.

ELECTRICAL CHARACTERISTICS OF RUBBER INSULATION. By E. W. Davis and G. J. Crowdes. 16 pp. 1932. Reprinted by Simplex Wire and Cable Company, Boston, Mass. For free distribution.

This booklet is a reprint of one of the papers delivered as part of the Symposium on Rubber, conducted by the American Society for Testing Materials. The paper deals with the properties of rubber compounds with particular reference to the effect of such properties on the electrical characteristics of a rubber insulated wire or cable in service.

STANDARDS YEARBOOK, 1932. Bureau of Standards, U. S. Department of Commerce. 394 pp. Purchasable through the Superintendent of Documents, Government Printing Office, Washington, D. C. $1.00.

The 1932 edition of the Standards Yearbook contains many references to rubber and the rubber industry. The increasing importance placed upon standardization by many foreign governments and world-wide developments along this line, as well as various other scientific achievements, are discussed in the book. Considerable detail is given on standardization work being done in the United States.

TIRE AND RIM ASSOCIATION YEARBOOK, 1932. 142 pp. 1932. $2.00 per copy. Published by the Tire and Rim Association, Guarantee Title Building, Cleveland, O.

The new Yearbook contains detailed and illustrated data on all the present standard tire and rim models. This year's book also carries a supplement on the new low pressure balloon tire.

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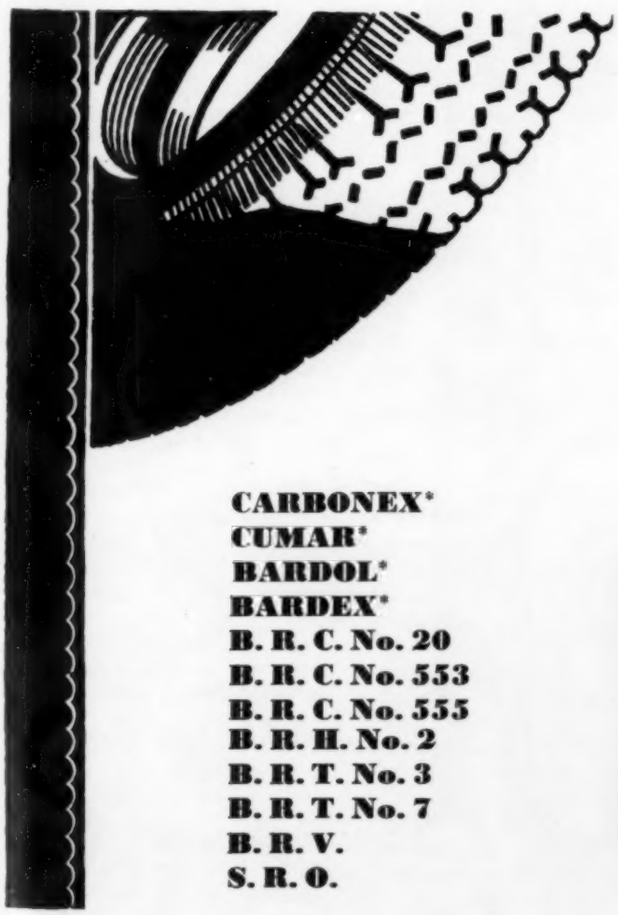

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